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SOME THOUGHTS ON EXOPHTHALMIC GOITRE.*

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The short paper which I beg to read at this meeting does not aim to present an exhaustive study of the subject, but merely to indicate some few points which I believe merit consideration at this time. Permit me to introduce the subject by presenting this specimen of goitre with its history and to follow it with some thoughts suggested by it.

Mr. R. L. B., aged twenty-one, a law student, of medium weight and height, presented himself for examination in June, 1904. He comes of healthy parents, had never heard of a case of goitre or any nervous disease in his family. Had lived a regular life, used tobacco moderately, no stimulants at all, was of studious and rather sedentary habits. Never had undergone any serious illness; cannot recall any sudden shock, special worry or fright. Commenced to be aware of great lassitude, indisposition to study and of weakness in the early part of the year; consulted an ophthalmologist because of pain back of his eyes. Patient is very nervous and excitable, sleeps poorly and feels weak; exophthalmos and enlargement of the thyroid well marked; heart normal in dimensions, at the base systolic bruit; apex-beat very strong, loud and diffuse, shaking the whole chest; pulsations of the arteries of the neck with thrill and bruit; pulsation in veins; thyroid pulsation expansive; Stellwag's and von Graefe's signs present; skin thin, delicate, flabby and moist; marked tremor of the hands, less of the tongue and lips; has attacks of tachycardia, frequent vomiting spells and diarrhea. Temperature normal; pulse of fair tension, small, 120. Treatment, rest, strophanthus and x-ray. Patient left for home after three weeks, not improved. Saw patient again in October, the proposed operation not accepted. Again strophanthus and x-ray treatment every other day, ten minutes, four-inch exposure. Agreed to operation in December and went to hospital; for one week, rest in bed, cold applications to neck and belladonna. Operation December 11, 1904; would not consent to be operated on under local anesthesia; excitable, pulse 115 to 120; ether anesthesia. Kocher's angular incision. Sterno-mastoid muscle not only freed at inner border,

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but separated in order to be able to raise it, instead of drawing it outward, which latter disturbs anatomical relations. Inferior thyroid ligated before bifurcation; recurrent found and traced; superior thyroid artery large as radial; firm attachment of capsule to cricoid cartilage; much hemorrhage from inferior thyroid veins, which were large and very friable. Separation of thyroid fairly easy; junction of thyroid halves irregular; drainage.

Patient reacted fairly well; pulse 130. End of first day, pulse 120; temperature 99; second and third days, great excitement and restlessness, pulse varying from 130 to 165; great weakness; status thymicus. From fourth day gradual improvement; tenth day pulse 90, respiration 22; wound healed promptly; fair recovery. February 1, 1905, remaining lobe decreased in size, no bruit over it, no tachycardia, no visible pulsations, no bruit of arteries, no tremor; heart beat quiet, good strength; reduction in size of neck one inch and a half; still slight exophthalmos.

The junction of the two halves of the gland was peculiar. There was no isthmus, but not the separation of the lobes in absent isthmus as described by Marshall[1], but a junction in the middle line of the two lobes, which for a distance of two inches formed a continuous whole; the specimen shows where separation was effected.

Many years ago Billroth, the immortal surgeon of Vienna, said that the future of medicine lies in surgery. Was it a hope born of an appreciation of the possibilities of surgical procedures, or was it the estimate the distinguished operator placed on the limitations of physiological chemistry and pharmacodynamics? During the last two decades surgery has most successfully invaded the domain of internal medicine and many subjects formerly readily conceded thereto, now belong to the Grenzgebiete, the border territories between medicine and surgery. Among these subjects the subject of exophthalmic goitre occupies a commanding position; in fact, its treatment is one of the burning questions of the day. A distinguished internist[2] says: "Medicinal measures are notoriously uncertain, operative measures seem to offer the greatest relief," and, according to an equally distinguished surgeon[3], "Internal treatment must be first considered, because the disease not infrequently disappears spontaneously." We grope among the remedies medicinal or operative without clear and precise indications for either. The close relationship which exists between vascular exophthalmic and other forms of goitre is perhaps an element of confusion, tending to obscure our views of symptoms, treatment and results.

Exophthalmic goitre was first described by Parry[4]; in 1786 the exophthalmos, the tremor, the twitchings and vascular disturbances were noted. The Italians claim priority for Flajani. Graves described it in 1835, and Basedow in 1840. The chief symptoms of the disease are enlarged thyroid, exophthalmos, tachycardia and tremor, with the presence of

many nervous phenomena, and of often one or all of the following signs: Stellwag's, the abnormal separation of the lids; Moebius, the insufficient accommodation without diplopia, and Graefe's, the slowness with which the upper lid moves in the vertical line, when following the changes in the visual plane.

We should *ab initio*, distinguish between cases grafted upon thyroids otherwise diseased and the pure form, the anatomical basis of which[5] is the presence of a diffuse hyperplasia of the epithelial parenchyma, combined with a morphological and topical change of the cells, the absence of colloids and great vascular increase. In 1800 Sandstroeme[6] described the accessory thyroids, the glandulae parathyroideae. Little importance was attached to their discovery until in 1895, Kohn, of Prag, found in the interior of the gland the inner glandulæ parathyroideæ, which, on account of their structure, he called epithelial bodies, "epithelkoerperchen." His studies included the function of these bodies, which are found to play an important role in relation to post-operative tetany. The hypophysis cerebri, with its recognized relation to the thyroid, has of late been carefully examined after death from thyroid disease and while not uniformly, has in many cases shown evidences of hyperplasia and the presence of chromophile cells. To the thyroid itself the following functions are credited[7]: that it renders harmless substances in the body that have a toxic action (mucin is believed to be one of these), that it does this by virtue of the secretion of the thyroid gland, which is probably an organic iodine combination, the iodothyrin, and is contained in colloid. The secretion is abundant in normal thyroids; it enters the blood through the lymphatics. This meager account of the functions of the thyroid cannot be accepted as sufficient, in view of the fact that congenital thyreoaplasia is accompanied by dwarfed development of the body, by cretinism, by myxedema, by hypothermia, pale, flabby, sodden skin and every evidence of greatly reduced blood pressure. What is the relation of the absent thyroid to these phenomena of interfered with development and continued low blood pressure? Cryle's experiments on blood pressure seem to prove that blood pressure is maintained by the action of the internal secretions on the vaso-motor system. One of these, the secretions of the supra-renal capsule, by experiment and clinical experience, has been proven to possess that power. Most interesting, as bearing on this question, is the work of hosts of experimenters and observers, the results of which Sajous[8], in a recent article in the *Journal of the American Medical Association* of February 4, 1905, thus summarizes: "Summing up the facts adduced, they seem to me to sustain the contention that the pituitary body, the adrenals and the thyroid jointly govern all oxidation processes and, therefore, the functional efficiency of all organs. If, as stated, the functions of the pituitary, the adrenals and the thyroid are interdependent, thus constituting what I have termed the adrenal system, impairment of the functional activity of

either one of them must morbidly influence that of the others. Over activity of the thyroid, for example, by surcharging the blood with this organ's internal secretion will over stimulate the pituitary body, and through them (the anterior and posterior) the adrenals, thus causing the symptom-complex of general hyperoxydation, exophthalmic goitre.

Conversely lowering of the thyroid correspondingly lowers all oxydation processes, as instanced by hypothermia, of myxedema, cretinism, etc. For the further elucidation of the subject I may be permitted to place side by side the results claimed in experiment with the results of clinical experience. Adrenalin, hypodermically injected, or increased activity of the adrenals, causes contraction of the central vascular trunks and engorgement of the peripheral capillaries, as indicated by general peripheral hyperaemia. (Adrenalin acts directly on the muscular fibers of the arteries and arterioles, producing contraction of these vessels). Insufficiency of the adrenals is followed by engorgement of the central vascular trunks and depletion of the peripheral capillaries as indicated by general pallor. Hypersecretion of the thyroid produces over stimulation of the adrenals, hence the vascular overactivity, such as we see in exophthalmic goitre. Diminished thyroid secretion or total absence of it produces adrenal insufficiency, as indicated by the depletion of the peripheral capillaries, pallor, etc. If this be true, thyroid extract or its organic iodothyrin compound administered to a healthy person should produce adrenal overactivity; that is, some or all of the symptoms of exophthalmic goitre. Common experience has taught us the truth of that proposition. This is a case in point[9]: Patient had, on his own responsibilty, taken thyroid extract for obesity. Within five weeks he took nearly 5,000 grains of the extract. He lost thirty pounds, and on examination had marked exophthalmos, with both Stellwag's and von Graefe's signs, the thyroid gland was enlarged and pulsated, and there was a thrill over it; a fine tremor of fingers and tongue was evident, the cardiac apex beat was displaced outward, pulse 120 and mental disturbance. Under the use of arsenic, and the withdrawal of the extract, most of the symptoms disappeared after a few weeks, the exophthalmos alone remaining. Therefore, thyroid extract administered in exophthalmic goitre must increase the symptoms; in the reduced thyroid activity of some forms of goitre, or after the removal of a large part of it, thyroid extract administered should relieve the symptoms of depression, apathy, peripheral pallor and myxedema. I have the record of a case in which the conditions indicated prevailing, a most rapid recovery followed the administration of the extract.

I know of nothing better to prove our proposition than the experience of Kocher. Kocher has tried organic preparations of thyroid, ovarium, thymus, supra-renal capsule. As a rule they produce little effect, the least the ovarin. As unique, Kocher considers the rapid increase and aggravation of all symptoms in his case 10, under thyroid extract ad-

ministration. In eighteen of his cases great increase of most symptoms occurred in a short time, heart's action and pulse more frequent, increase of tachycardia, tremor and excitement. In cases 8, 9 and 10 occurred frequent vomiting and diarrhea, in case 16 great loss of strength, in case 14 insomnia, in case 33 increase of the vascular symptoms of the thyroid, in cases 42 and 46 striking loss of weight and strength, in case 60 increase of headache, heart bruits and exophthalmos; in case 6 exophthalmos and glycosuria, in case 5 great tremor of the whole body and great headache, in cases 10 and 13 increase of the thyroid gland and its vascular bruits, tachycardia, unusual frequency of pulse, insomnia, headache, loss of hair, increased tremor; in fact, of all symptoms of exophthalmos.

The etiology of the disease leaves much to be cleared up. By some writers it is considered a pure neurosis, by others a disease of the sympathetic nerves, by still others as originating in a lesion of the medulla or restiform body. Chlorosis or anemia, or both, often present in the premonitory stage, have been considered to be the cause. Goitre is much more frequent in women than in men; according to Buchan, in the proportion of 46–1. Shock, fright, worry, continued nervous exhaustion, possibly toxines furnished from the gastro-intestinal canal, may be the ultimate cause of the glandular activity. The weight of evidence at this time, is on the side, which claims that the disease is due to a hyperactivity of the gland, hypersecretion and delivery of the secretion into the blood, without a certainty as to the primary or initial cause of such overactivity. The treatment is hygienic, medicinal, electrical and surgical. Strophanthus has reduced the heart action in some cases; ergot is warmly recommended; belladonna occasionally palliates, if administered to the point of faucial dryness; cold applications, long continued to the neck or heart, give relief; perhaps some temporary benefit is derived from galvanism. The iodides have been much depended upon; they are not indicated. Thyroid extract or iodothyrin do harm. The x-ray will do some good; it has done so in a few of my cases. Chas. H. Mayo[10] used it with benefit in ten cases, and his explanation of the effect of the x-ray is logical. According to that authority, the effect is to reduce glandular activity and to reduce absorption by the lymphatics. The sclerotic condition of the gland and of the lymphatics should reduce secretion and its delivery. I doubt that this may occur to such an extent as to give rise to symptoms of thyroid insufficiency as after the removal of the greater part of the gland.

Adrenalin can be useful when, from long-continued overactivity of the thyroid, overstimulation of the adrenals ends in exhaustion and adrenal insufficiency. Then adrenalin, hypodermatically administered, may for a time substitute adrenal function.

Operative procedures resorted to, are resection of half or three-fifths of the enlarged gland; ligation of the superior and inferior thyroid

arteries; removal of half the gland and isthmus, with ligation of its arteries and ligation of the inferior thyroid artery of the other side; section and resection of the cervical sympathetic and exothyreopexy. The last has at present few advocates. The operation on the sympathetic, introduced by Taboulay, based on the theoretic reasoning of Abadie, seems not to rest on a sound foundation. On the whole, the results of the operation are less favorable than of those which attack the gland itself. Jonnesco practices bilateral resection. He says,[11] in an article of August, 1899: "I consider that the time has now arrived to grant to this new operation, performed by so many surgeons, the place due it among the praiseworthy feats of modern surgery, and there are no remote effects of the operation, and in skilled hands no mortality."

According to notable authorities,[12] the only symptom that seems to be favorably influenced constantly is the exophthalmos. Tremor and tachycardia persist in almost all cases, and the general condition has not been improved. Fatal cases of galloping cachexia are reported. The bilateral resection of the cervical sympathetic cannot be considered an indifferent procedure. Unless other nerve paths act as substitutes, functional disturbances must follow their removal. Recent research credits them with the function of a medium of communication between thyroid, hypophysis cerebri and adrenals. If they are cut, the functional activity of the adrenals must cease. The absence of the sympathetic should make itself felt.

On December 12th I resected both superior cervical ganglia for glaucoma. The patient made a prompt operative recovery, and is said to have improved. I watched for symptoms or signs which might be ascribed to the absence of the ganglia; I could observe only slight decrease in ocular tension. I shall watch the future of the case with much interest. Partial strumectomy, with or without the additional ligation of the artery of the other side, with the present view of the pathology, should be the normal surgical method. Patients with very excessive pulse rate, 150 and upward, should be treated by rest, belladonna and the x-ray preparatory to the operation. The details of the operation, the provision for drainage, the avoidance of injury to the recurrans, the preference of the anesthetic, require no mention before this society.

The intense activity in physio-chemic research work may some day suggest an antidotal treatment to the iodin poisoning, which is at present believed to be the result of thyroid overactivity. Late reports claim much, perhaps too much, for the natron salt of sulphanilic acid, for Merk's thyroid serum,[13] and for rodagen, which is the milk of thyroidectomized goats containing 50 per cent. of sugar of milk,[14] and for which Burghart and Blumenthal claim favorable results in the treatment of vascular exophthalmic goitre. This latter treatment should be tried before surgery steps in.

REFERENCES.

1. Arch. for Chirurgie, June, 1892.
2. Osler's Practice of Medicine.
3. Bergman and Mickulicz's Practice and Surgery.
4. Osler's Practice.
5. Haemig, Archiv fuer Chirurgie, 1897.
6. Pineles, Grenzgebiete, 1904.
7. Bergman and Mickulicz.
8. Journal of Amer. Med. Assn., February 4, 1905.
9. Notthaft, Centralblatt fuer innere Medicin.
10. Med. Record, New York, November, 1904.
11. Jonnesco, Bucharest Journal, 1899.
12. Bergman and Mickulicz.
13. Kirnberger, Centralblatt fuer innere Medicin, February 6, 1904.
14. Chemisches Centralblatt, 1902, page 229.

AN HISTORICAL REVIEW OF THE DEVELOPMENT OF KNOWLEDGE OF THE RELATIONS OF THE MIND AND THE NERVOUS SYSTEM.*

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Ladies and Gentlemen:—In answer to the request with which the executive committee of the Medical Faculty of this University honored me, I consented to attempt to interest you for an hour by the presentation of some subject bearing upon the history of medicine.

Last spring I prepared an address for the annual meeting of the American Medico-Psychological Association; and in what I shall have to say to you to-night there will be much of what I compiled for that occasion. You will pardon me this double use of historical material when I add that the address mentioned has not yet been printed, and that I have made such changes and additions as seemed required by the circumstances of this evening.

In these days of rapid advance in science, we are so busy trying to keep pace with actuality that we rarely have time to review the past. The Faculty, it seems to me, has done wisely to offer to its students some opportunity to rise above the immediate and practical grind of assimilating elementary facts and gain a larger view of the world.

One of the most valuable lessons of history is its overwhelming demonstration of the inherent tendency of the human mind to confound error and truth. Scientists, more than all others, need to ponder this fact. The real progress of the world depends upon the growth and dif-

*This lecture, delivered January 30, 1905, as the opening one of the historical course, as is indicated in the text, with slight changes, is a repetition of the annual address delivered before the American Medico-Psychological Association, at St. Louis, in June, 1904.

fusion of exact knowledge. Scientists themselves have often placed almost insurmountable obstacles in the pathway of progress. Aside from superstition and all that engenders and nourishes it, the greatest obstacle that humanity has had to encounter in its toilsome march toward truth and freedom, is traditional authority crowned by the halo of a great man's name. Recall the shattered convictions and opinions that mark the long pathway of human progress, and be not too dogmatic nor overintolerant of ideas that contradict your own. To-day the judicious mind accepts no man's name as the demonstration of the truth of an idea, theory, or conclusion. As Soury has said, "Science is larger than the brain of any one man. Science is not, it becomes."[1] This is one reason why science appeals so little to humanity in general: man longs for completeness, for a rounded and finished whole, for something to satisfy the emotional side of his nature. This is found in art, in literature, in religion. The great scientists of all ages were also human; they often were as weak as those they deemed weak from ignorance. There is no real difference between the longing of the scientific mind to evolve a theory of the cosmogony, and the faith that accepts some supernatural explanation of the universe that solves all the problems of life and reconciles us with death.

To one looking backward over the rugged landscape of history, the great names rise up like isolated peaks. Thus is emphasized the contrast existing between the past and present—the change of intellectual level on which humanity progresses. Now there are so many contributors to the advancement of science, and all workers are so intimately interobligated that the light of originality loses individuality.

As an introduction to a review of the growth of knowledge of the relations of the nervous system and the mind, let me give you the status of knowledge early in the nineteenth century. Kant said in 1800: "I have called these diseases of the head disorders of consciousness, just as disturbance of the will is called a disease of the heart. I have considered the phenomena of these maladies only in the soul without any desire to discover their root, which lies, properly speaking, in the body, and which may very well have its principal seat in the digestive apparatus rather than in the brain." In letters written by Kant apropos of the dedication of Soemmering's work to the great philosopher of Koenigsberg, in which Soemmering succeeded to his own satisfaction in establishing that the mind had its seat in the fluid that fills the cavities of the brain, Kant accepted Soemmering's theory as the only tenable one. He remarks elsewhere that though the majority of human beings had the subjective sense of thinking in the head, the deduction was erroneous because it assumed that the cause of the sensation lay where it was experienced. The immortal Pinel, in 1809, wrote: "But it seems in general that the primitive seat of this alienation (mania) is in the stomach and intestines, and that it is from this center, by a kind of radiation, the

disorder of the understanding is propagated."[2] Esquirol wrote in 1838: "Insanity has not always its point of departure in the brain, but rather in the centers of sensibility placed in various parts of the body."[3] In a German work entitled "An Introduction to Philosophy," published in 1893, Paulsen says: "There are no thoughts in the brain; one might just as well say that thoughts were in the stomach or in the moon." In answer to this, Flechsig remarks, more facetiously than scientifically: "That thought takes place in the brain is the conviction of numerous great thinkers—while until now I have never heard any but the crazy and imbecile say that the mind was in the stomach or the moon."

When we compare these ideas with those of antiquity we shall be struck by the fact that for more than two thousand years, philosophy and reverence for traditional authority, equally with superstition, did little but retard the growth of knowledge of the relations of the brain and mind.

The Homeric poems seem in large part responsible for the perpetuation of primitive ideas of the nature and seat of the mental faculties, as shown in the common metaphors of heart, heartiness, heartfelt, heartless, etc., as terms for mental qualities or states. We all know that exalted emotivity is subjectively accompanied by sensations in the epigastrium and about the heart. We now see the reason for this ancient assumption, with Polybius, in the effect of cerebral excitement to alter the usually quiet activity of the heart and vascular system and respiration. The physiologic sensation is thus probably responsible for the early theory that the thoracic organs were the seat of desire, emotion, passion, thought. The diaphragm (phrenes) and heart, for some reason, appeared to be of equal importance, possibly because of the rhythmic movement of the diaphragm in respiration and its spasmodic action in emotional states. This accounts for the word phrenitis, still in quite general use as a designation for insanity, and the common word frenzy, which in their primitive meanings signified disorder of the diaphragm.

It does not seem possible that the subjective sense one has of thought as taking place in the head, would be without influence in directing attention to the brain as the seat of mental activity; and it is not impossible that self-observation, equally with anatomic knowledge gained in dissection and vivisection, led Alcmaeus to regard the brain as the seat of sensation and reason. A contemporary of Pythagoras, Alcmaeus lived in the fifth century B. C., and was, according to Galen, the first known investigator to resort to dissection and vivisection, and the first to regard the brain as the seat of the mind. It is worthy of note in passing that the theory of sleep promulgated by this ancient observer is maintained by some today; "Sleep is due to the retreat of blood into the veins (anemia); awakening, to its diffusion."

The ideas of Alcmaeus have come to us in part through the writings of Aristotle, who cited them only with a view to controvert them; and in

this he succeeded completely, for his location of the mind in the heart and blood remained valid, in one form or another, almost to our own day.

The view of Alcmaeus of the brain as the organ of the mind must certainly have been much older than himself, though entertained by but few of his own day, if Aristotle is to be believed. It is remarkable that Alcmaeus regarded the brains of all animals to be alike; that is, that they were all of the same fundamental nature, and that all that distinguished the human brain from that of lower animals was the greater development of intelligence. By this physiologist is found foreshadowed, if not stated, the recent theory of Flechsig concerning cortical centers of projection and centers of association.

Plato (429-347 B. C.) gives us a very clear statement of localizations of mental faculties. His division of the soul into three parts seems to be paralleled by our conventional and artificial division of the mind into intellect, feelings and will, which we now properly regard only as aspects of psychic activity. Plato, in his philosophic division of the soul into faculties, doubtless was logically driven to find separate, though associated, seats for them. Plato placed the thinking soul (nous) in the head; the thymos, or executive soul (will), in the heart, and the sensitive soul in the liver. The liver for him was the center of sensations and desires, the heart was supposed to be the seat of the will (courage, initiative), the reasoning faculty lay in the brain. By Plato the spinal cord was for the first time given a function. He considered it the connecting link between the three souls, and even as constituting, in a way, three mental localizations. The brain is not, as by Alcmaeus, considered the seat of perception. For example, sounds, though passing by the ear and the brain, were perceived by the liver, and that through the medium of the blood vessels.

Turning now to the father of medicine, we note the same triple division of the soul. Hippocrates, who placed the common sensorium in the blood and heart, considered the brain to be a gland, an opinion for which he gives many scientific reasons. For example, on account of the brain's great size and its consequent power to absorb and give forth humidity the hair of the head grew long and was abundant.

The Hippocratists were well aware of the fact that injuries to the brain caused apoplexy, paralysis, loss of speech, delirium, insanity, etc., and even that hemiplegia was caused by contralateral cerebral lesions; but this clinical knowledge had no effect to alter the error of regarding the blood as the source of intelligence. Yet we cannot blame them unless we blame likewise Willis (1621-1675) and Descartes (1596-1650), who practically held this doctrine as propounded by Aristotle.

It seems strange at first thought that wonderful work on the *sacred disease* (epilepsy), which was written by an immediate follower of Hippocrates and contemporary of Aristotle, probably by Polybius, has had

so little effect upon knowledge of the brain and mind, and incidentally of disease; for in this treatise the mental and moral faculties are placed definitely in the brain, and epilepsy is regarded as a disease having nothing whatever to do with divine influence. It is worth while to give some of the ideas of this writer: "We think, understand, see, hear, through the brain; by it we recognize the beautiful and the ugly, evil and good, the agreeable and disagreeable, pleasure and pain. But if the brain be not healthy, either too hot or too cold, we are delirious, or have fears and terrors and dreams and cares that torment us without reason. Upon whether the alteration of the brain depends on mucus or bile, the insane are calm, depressed and anxious or violent and excited. As for the diaphragm (phrenes) it has received its name by accident, for it has nothing to do with thought or intelligence, any more than the heart, though some maintain that we think by the heart, and that this organ is the seat of sorrow and care. It has nothing whatever to do with them. Doubtless the heart contracts, just as the diaphragm trembles and convulses in response to great joy or sorrow. But neither has anything to do with the mind; the brain alone is the organ or interpreter of intelligence."

There must be reasons to explain the lack of fecundity of such clear statements of facts. In the first place, there was no convincing proof that they were facts. The Aristotelian philosophy, with the idea of the blood as the seat of the mind, acquired the weight of authority. Authority prevails when two doctrines equally unproved are presented to us for consideration.

Aristotle (384-322 B. C.) was essentially a critic of the works of others; for it seems highly probable that the greater part of his writings were the result of his reading of physiologists and anatomists rather than the product of personal observation. He knew nothing of the anatomy of mammalia except at second hand. For him the brain was merely a refrigerator to cool the blood, and it occupied only the anterior part of the head; the posterior portion of the cranium was hollow. The superior intelligence of man depended upon the fortunate combination of a large refrigerator and a powerful and very warm heart. Aristotle's conclusions about cerebral physiology were based upon a series of scientific arguments that leave nothing to be desired as far as logic goes. In the first place, he asserted, doubtless perpetuating an ancient scientific error, that the brain was absolutely insensible to mechanical stimulation. Again, with the exception of cephalopods, invertebrate animals had no brains; but invertebrate animals were sensitive, and, therefore, sensation must depend upon something besides the brain—a conclusive argument against the assumption that the brain is the organ of sensation. The brain was absolutely devoid of blood; but all experiments showed that in animals that had blood only those parts of the organism were sensitive that were vascular, while those parts that were without blood vessels were insensible

Study of the brain itself showed that it had no relation whatever with the organs of sense. Thus arguments based upon prevalent anatomy and physiology showed beyond all doubt that the heart was the central organ of sensation; and here Aristotle placed the common sensorium, which, since his day, has wandered far and wide in the organism.

The object of metaphysicians since the beginning has been the discovery of the "common sensorium," and it will be well to make clear its meaning at once. By the term "common sensorium" is understood the place in the organism where all the elements of the mind are united and correlated, and thus, according to the usual notion, brought into relation and subordination to the soul or Egó.

In his study of mental phenomena, Aristotle was less liable to err, owing to the very fact that they were studied as phenomena independent of a material basis; and here he displays that acuteness of thought and perspicacity in definition that have caused him to exercise so great an influence upon philosophic thought through ages. Aristotle had a perfectly clear understanding of the nature of elementary anomalies of the senses and intellect. To him hallucinations were perfectly familiar, and his observations on somnambulism might date from the nineteenth century. The modern doctrine of neuro-psychic degeneracy and its relation to genius is quite as clearly set forth by Aristotle as by the modern advocates of the theory enunciated by Morel and developed by a host of modern observers.

Straton, one of the followers of Aristotle, makes this profound remark concerning sensibility: "It is not in the foot that we have pain when we hurt it, nor in the head when it is bumped, nor in the finger when we cut it. Our whole body is insensible with the exception of that sovereign part (the organ of perception); it is there that the blow immediately develops the sensation which we call pain."

In the third century before our era Cleanthus reveals the beginning of the notion of psychic heredity when he says that "we are not only like our parents in body, but also in soul; in our passions, our characters and manners, and in the disposition of our organs; and, therefore, the body is the soul."

To Herophilus and his great contemporary, Erasistratus (third century B. C.), of the school of Alexandria, is due the honor of making the first real advance in knowledge of the brain and nervous system. Their pre-eminence depends upon their work in dissection and vivisection of both men and animals. Herophilus distinguished sensory and motor nerves, although he did not definitely distinguish nerves from tendons. Erasistratus recognized the same differentiation of nerves into motor and sensory, and, besides, gave a most remarkable description of the brain itself, and he reached the conclusion that the superior intelligence of man depended upon the richness of his brain in convolu-

tions. Strange to say, this fact, now universally recognized, was not accepted by the greatest of physicians, Galen.

In the French edition of the Institutes of Anatomy, by Bartolin, in my possession, bearing the date 1647, I read: "The external surface of the brain presents fissures, convolutions and twists that resemble the intestines. It must not be concluded with Erasistratus that nature intended these to subserve reason, for asses as well as men have them; nor that they are to diminish the weight of the brain, as Aristotle would have us believe; nor that they do not serve any purpose, as some maintain; they protect the blood vessels which pass in the depths of the fissures, and thus the vessels run no risk of being broken by the continual movement of the brain, especially at the time of the full moon, when the brain swells decidedly in the cranium." This writer gives no credit to Galen, for this remarkable argument, with which he would annihilate the fact enunciated by Erasistratus, though Galen was its author.

This example of puerile reasoning should not prejudice us in our estimation of Galen's services to science. His teachings definitely placed the mental functions in the brain. Though he probably never dissected a human brain, he was thoroughly familiar with the gross anatomy of the brain and spinal cord. His great knowledge of anatomy was practically exclusively derived from the dissection of animals, especially monkeys. A marble torso in the Museum of the Vatican, which probably antedates Galen, is an enduring monument to the fact that dissection of the human body could not be practiced during that age in Italy—the trunk of a man is represented with all the organs of a monkey in place.

In the brain itself, to Galen (131–201), the ventricles were of first importance, seemingly because he assumed that it was only by means of cavities and tubes that vital connections and communications could take place. Thus he gave much attention to the study of the ventricles and their interconnections. To his mind the *pneuma* entered by the nostrils, attained the lateral ventricles, passed downward to the fourth ventricle, and thence was distributed to the brain and throughout the body by the nerves, conceived as tubes. For Galen, the function of the corpora quadrigemina was to regulate, by variations of pressure, the flow of the psychic pneuma or spirits through the passage from the third to the fourth ventricle; the pineal gland is expressly proved to be non-nervous in structure and to have no functional relation to the brain. (Galen was clearer sighted than Descartes.) The serous secretion of the ventricles was regarded by Galen as an excretion which found its way downward into the nares and pharynx through the bones of the base of the skull; in this the pituitary body had a function, as its name (mucous gland) indicated. It is interesting to remark in passing, as an example of the persistence of ancient errors in names, that the French speak of *rhume de cerveau* (cold in the head) for coryza.

Galen conceived three theoretical forms of pneuma (psychic, vital,

physical), and he translated them into psychic force, sphygmic force and physical force. Psychic force is the principle of intelligence, memory and thought, which, as we have seen, operates through the brain and nerves; but we still find mental qualities attached to the others—courage, anger, character reside in the sphygmic force, and sensual desires arise from physical force. Nowhere in Galen's writings is found anything to correspond with the idea of the common sensorium of Aristotle, a fact probably due to Galen's great desire for physical demonstration. Galen has the supreme merit of having continued and developed the experimental methods in anatomy and physiology of the School of Alexandria. To examine his masterly work in clinical description of diseases of the brain would take us too far. One example will suffice to show the correctness of Galen's knowledge of nervous anatomy and physiology. When the physicians asked in controversy how it was possible that movement could be retained with loss of sensibility, he replied: "Have we not sometimes seen the contrary—conservation of sensibility with loss of movement?" And in explanation he said: "All voluntary movements are executed by muscles. If the nerves going to musles are affected, their movement is lost; but if the nerves affected are those distributed to the skin, it is the sense of touch that is implicated."

Of the followers of Galen, Oribasius (325–400), physician to the Emperor Julian, with Plato, admitted the three seats of the soul and the three forces of Galen. Concerning delirium, mania, melancholia, phrenitis, lethargy, apoplexy, epilepsy, etc., regarding them as diseases of the first principle, he could only entertain the view that the lesions lay in the head, either uniquely and primarily, or secondarily through sympathy with some other parts. In his writings, we find the first reference to the physical stigmata of degeneracy. "In badly formed heads, the palate should be examined and it will be found to be high-arched. In persons that present pointed obliquity (oxycephaly), in certain cases, it will be noted that the teeth do not correspond exactly; that is, that the superior and inferior teeth do not come together in a straight line, so that the mouth is drawn up and twisted. Such individuals, you will find, are subject continually to headache and inflammation of the ears."

Through the Middle Ages nothing of great importance was added to practical knowledge of the brain. Here and there, as at the School of Salernum, certain new observations were made, but, in general, knowledge of the brain was only the interpretation or misinterpretation of the Greeks and Galen. Owing to the importance of the ventricles in the theories of Galen, it is not surprising that they became considered to be of great importance, though Galen himself regarded them only as the reservoir of psychic force which spread throughout the brain. This perhaps accounts for the fact that Avicenna (980–1036) localized the faculty of imagination and thought in the middle ventricle, memory in the pos-

terior ventricle, and the common sensorium, including perception, in the anterior ventricle. Avicenna represents, perhaps, the highest development of medical science among the Arabs, but without doubt his knowledge was derived from the ancients and Galen, and it seems probable that the great renown in which Arabic medicine was held during the Middle Ages was due to the fact that the study of the earlier scientists among them was comparatively continuous, whereas in Europe it was interrupted. For this reason, too, the knowledge which came into Europe from the Arabs and was passed on by the early schools of medicine, was colored by the interpretations that had been put upon the writings of Hippocrates, Aristotle and Galen by the Arabs. Thus, throughout the Middle Ages, we find scholastic interpretations and applications of the Aristotelian and Galenic ideas in relation to the mind and nervous system that show the Arabic influence.

The names of Sylvius (1478-1555), Versalius (1514-1564), Varolius (1543-1575), Fallopius (1523-1562) and Harvey (1578-1658) mark the transition to modern observers; but none of these men, who left their marks in the history of knowledge of the human body, had anything more than a Galenic or Aristotelian conception of the relations of the mind and nervous system. When Varolius described the ventricles of the brain and their secretions, he did nothing more than restate the theory of Galen, and his localization of mental functions is exactly that of his renowned predecessor.

The consummate anatomist and physiologist, Descartes, was necessarily occupied with the ever unanswered question of the nature and seat of the mind. His opinion may be cited as a good example of the state of knowledge of his age: "The parts of the blood which attain the brain serve not only to nourish its substance, but principally to produce a certain very subtile wind [ancient preuma], or rather a flame very bright and pure, which is called animal spirits. The arteries that bring the blood from the heart, after dividing into an infinite number of small branches and forming a fine tissue net-work which is spread out like a carpet in the bottom of the cavities of the brain, again unite around a certain small gland placed near the middle of the substance of the brain at the entrance of the cavities, where they possess a large number of small holes through which the most subtle parts of the blood they contain enter the gland, but which are so small that the grosser parts of the blood cannot pass through them. The coarser parts pass on to give nourishment to the brain in general; the finer parts become animal spirits which pass from the small gland to the ventricles, thence to the brain and into the nerves. Thus they attain the muscles, having power to cause them to change their form." The conception of Descartes does not differ in its simplicity from the ideas of the ancient Greeks. The animal spirits are regarded by him as the essence upon which rest imagination, memory, judgment, sensation and movement; and to derange-

ments in the animal spirits are due affections of the nervous system, such as vertigo, apoplexy, convulsions, mania, etc. Descartes, notwithstanding his profound studies in anatomy, was so dominated by philosophy, that he was forced to find a common sensorium, and he finally hit upon the pineal gland as its seat. However, Descartes was not the first to regard this so-called gland as the seat of the soul, for others had enunciated this idea before him, and he was not without those who opposed this localization and that most effectually.

Of modern investigators, Thomas Willis (1621-1675) is one of the most remarkable, and he was the first, perhaps, to definitely regard the cortex of the brain as the seat of the mind; but by him were continued the theories of Descartes in the sense that he conceived that the distillation of animal spirits took place in the cortex instead of in the pineal gland. In him Hughlings Jackson had his precursor; for Willis attributed great elasticity and explosiveness to the animal spirits, comparing them to powder in a cannon. For him, the animal spirits, after distillation in the cortex, were distributed to the muscles by the nerves; and he attributed the spasmodic action which results in convulsions to explosion of spirits. After all, the theory of a nervous discharge and that of explosiveness of animal spirits are practically the same; the names only are changed. Willis' understanding of hysteria was as good, perhaps even better, than that of some modern writers, for he says: "This affection is convulsive and depends principally upon alterations of the brain and nervous system. It is produced by explosions of animal spirits. The origin of this disease should be sought in affections of the brain, such as might be due to fear, sorrow or some other passion affecting especially the spirits of the brain. This convulsive spasmodic diathesis, hysteria, is a disease observed not only in women but also in men."

When Proschaska (1749–1820), abandoning ancient terminology, in 1784 substituted the term *vis nervosa* for animal spirits, at one stroke he placed the study of nervous phenomena upon a solid foundation. While this was apparently merely the substitution of one name for another, in reality it was a radical departure which dethroned a philosophic dogma that had so long handicapped scientific thought; for instead of trying to explain the inexplicable, it gave a name to phenomena that belong to the nervous tissues by virtue of the fact that they have a distinctive structure. The *vis nervosa* became a name for that unknown something which we are logically forced to assume as the cause of phenomena that are manifestly the result of some form of force generated in and acting through the nervous system. Thus it became possible to study nervous activity in direct connection with the nervous system. From being an intermediary between the heart, blood, ventricular fluids, and animal spirits and the phenomena of life, the nervous system rose at one bound to the throne of vital supremacy. But if we owe to Proschaska this

epoch-making change of base, it must be said that he did not have an understanding of its universal application. If he emancipated himself from earlier dogma through his study and comprehension of reflex action, he still felt himself constrained to regard psychic force (*vis psychica*) as something apart and above *vis nervosa*. For Prochaska, the common sensorium was the central nervous system in general, but the nervous system itself was insufficient to engender intelligence.

About 1750 some observations made by Baader may be taken as the beginnings of modern cerebral localizations. From study of symptoms and cerebral lesions he concludes that, given a sufficient number of cases carefully studied clinically and at post-mortem, "We shall be able to know and predict what parts of the brain give sensibility and movement to this or that member; so that knowing the member affected we can determine what part of the brain is implicated; and inversely, given a distinct lesion of the brain, foretell what member must be affected." And after the study of some particular cases, Baader states that "perhaps we may conclude with certainty that the cerebral region beneath the parietal eminence controls the motility and sensibility of the upper extremity of the opposite side."

As we have seen, Soemmering did not render such service to knowledge of the relations of the mind and brain as he did to nervous anatomy; the same is true of those celebrated anatomists, Vicq d'Azyr (1748–1794), and Bichat (1771–1802).

In spite of the merited odium and ridicule into which the system of cerebral organology of Gall and Spurzheim has fallen, we should remember that knowledge of cerebral localizations owes more to Gall than to any one else. We cannot deny to Gall the signal merit of having by his surprising knowledge of cerebral anatomy and his erection of a false system, excited that interest in the study of the brain that has brought about such fruitful results in the last forty years. Bastian remarks that "nothing was known to them (Gall and Spurzheim) as to the real physiologic distinction existing between the gray and white substance of the cerebrum. The gray matter was by the founder of phrenology considered to have no proper nerve functions at all."[4] This statement needs refutation, for it is erroneous. Gall says expressly: "All nerves take their origin in the gray substance; in passing through it (the gray substance) they become intimately connected with it, and are reinforced by fibres from it." The ganglia and the gray matter in general were for Gall the trophic centers of nerves. Malphigi had a similar idea, but Gall went further and regarded the convolutions and the gray matter as the veritable seat or "organs of the intellectual faculties." "The convolutions must be recognized as the parts where the instincts, sentiments, inclinations, talents, the affective qualities in general, and moral and intellectual forces, have their places of activity." This is practically a general statement of what is maintained to-day. If Gall went

too far in theory, he certainly had very distinguished predecessors. Gall reached the conclusion that the superior intelligence of man depended on the predominance in development of the frontal lobes of the brain; and this is the current doctrine both popularly and scientifically. Ferrier, Wundt and Hitzig, to mention no others, regard the frontal lobes as the seat of understanding, attention, will; in other words, as the common sensorium. There are noted alienists in France who still speak of individuals as predominatingly occipitals, parietals, or frontals, meaning by these terms that sentiment, activity, or intelligence predominates in the character and is correlated to predominating development of a part of the brain. We must not wonder at Gall, when to-day we see Magnan defending his division of hereditary degenerates into spinals, spinal-posterior-cerebrals, anterior-cerebrals, etc. It is Gall out-Galled. I have in my possession the hemisphere of a hardened brain, kindly presented to me by the late Professor Luys in 1889, which displays a disproportionate prominence of the paracentral lobule. He informed me that during life the patient from whom it was taken had been extremely and persistently hallucinated, in what sense I do not now recall; and he impressed upon me by means of many other brains showing a similar peculiarity, that he was convinced that hallucination depended upon hypertrophy of the paracentral lobule.

Flourens, who said it seemed he had never seen a brain before when he saw Gall dissect one for the first time. localized the mental functions in the cortex; but, as is well known, he made all parts of the cerebral surface of equal and interchangeable importance. Theoretical cerebral localizations were the object of Gall's system; unity of function, that of Flourens' theory. We find adherents of one or the other of these theories in those of illustrious names throughout the nineteenth century—Magendie, Burdach, Legallois, Serres, Foville, Richrand, Desmoulins, Andral, Lelut, Bouillaud, Baillarger, etc.

The man to whom most credit is due, as having definitely established the cerebral cortex as the true seat and source of mentality, is Parchappe, the professor of Rouen, who stands alone in the middle of the nineteenth century as the true precursor of our ideas of today. It was by his study of general paralysis of the insane that he demonstrated his thesis beyond all doubt. For him all the mental functions had their seat in the cortex of the brain. He observed, in relation to mental disintegration in general paralysis, that: "Intelligence is more readily affected than either will or sensibility; and the will in its motor aspect, more readily than sensibility. The understanding and the faculty of thought are lost before the faculty of movement, and especially before the faculty of feeling. In general paralysis at its extreme stage, the lesion of intelligence is more profound than that of movement, and the common lesion of intelligence and movement is more profound than the lesion of sensibility; the latter is only abolished with voluntary move-

ment when the whole thickness of the cortex is disorganized." Parchappe regarded the cortex as the common seat of intelligence, will, and sensibility, just as we now regard the central convolutions as the seat of general bodily sensation and motor innervation.

Vulpian, of controversial temperament, which he seems to have communicated to some of his pupils, sought to detract from the imperishable distinction of Broca, in his effort to show that Bouillaud had preceded him in his location of the motor center of language. Bouillaud's conception of the seat of language as lying in the frontal lobes was but a modification of Gall's location of speech.

With Broca's immortal discovery (1861) of the motor center of language in the third left frontal convolution of the brain, the doctrine of cerebral localizations was impregnably established. But for its rapid enlargement the results of experimentation were needed, and it was not until 1870, when Fritsch and Hitzig demonstrated the excitability of the cerebral cortex to electrical stimuli, that the modern era of knowledge of the brain began; their experiments dissipated forever the ancient dogma of the inertness of the brain to mechanical stimulation, and opened the way to an army of investigators that now toil patiently onward toward complete elucidation of cerebral physiology.

How did Fritsch and Hitzig come to discover what all previous observers had failed to find? The brains of living lower animals were commonly used for experimentation. For this purpose it was necessary to remove the vault of the cranium. In so doing, however, only the anterior portion of the skull-cap was removed with consequent exposure of only the frontal lobes of the brain, which in truth are insensitive to electrical and mechanical stimulation. Fritsch and Hitzig took the precaution to remove the *entire* skull-cap of the dogs experimented on, and thus at last exposed the areas of the brain in which the motor centers lie—areas that occupy a position well back in the brain of the dog.

Let us review the lot of the common sensorium—the place where the soul or ego is supposed to come into relation with the nervous mechanism. Aristotle placed it in the heart; the scholastics thought it to be in the cavities of the brain; Descartes, owing to false anatomic reasoning, found no place suitable but the pineal gland; Willis placed it in the corpus callosum (the great mass of nerve-fibres connecting the two hemispheres of the brain); Haller and Proschaska selected the inner mass of the white substance of the brain; Vieussens chose the striate body which lies near the base of the cerebrum; Bartholin decided that a small point in the fourth ventricle, known as the calamus scriptorius, should have the honor; Kant, with some difficulty, allowed Soemmering to prove it to be in the fluid of the ventricles; Gall induced his successors and many of our contemporaries to establish its seat in the frontal lobes. Thus the common sensorium has had such a varied material existence, since it was deemed necessary to find for it a material abiding

place, that we may well ask whether in reality there be such a thing as a common sensorium.

The theory of Paul Flechsig[5] was first enunciated in an address given in the church of the University of Leipsic, October 31, 1894, when he became rector of the University. The essence of it lies in the hypothesis that the mind depends upon the development of numerous centers in the brain cortex which are in direct nervous connection with related bodily sense organs; that between these numerous cortical centers are established an infinite number of nervous connections which serve to associate them in their activities—to correlate and co-ordinate them. The systems of fibres that connect cortical nerve centers and bodily sense organs are called the projection system; those that connect nerve centers among themselves are called the association system, and in the association system he believes he has proved that there are at least two, and possibly three, great *centers* of association which he regards as being above or functionally superior to the centers of projection. He expressly denies the supposed supremacy of the association center of the frontal lobe, and believes that the association centers in the parietal and occipital lobes are of much greater importance for the development and expression of the higher manifestations of mind. According to this theory mentality is regarded as the result of the inter-action of center upon center or centers, and thus the search for the illusive common sensorium becomes unnecessary.

As a justification or illustration of this theory, which, I should add, has not escaped adverse criticism at the hands of such men as Hitzig and Dejerine, permit me to explain briefly what is called the cortical zone of language, and to point out the results that follow, as far as thought and speech are concerned, when the functions of this zone are interfered with or suspended in part or as a whole.

For the normal development of the faculty of speech, with its highest expression in written language, three brain centers are necessary; viz., a center to direct and control the organs of articulation in their movements (a motor center), a center for the registration and retention of articulate sounds (words) as they are heard (an auditory center of language), and, last, a center for the visual recognition of written signs that stand for the word heard. In right-handed persons, who make up about 98 per cent. of all humanity, these three centers lie in the cortex of the left hemisphere of the brain. They are demonstrably intimately interconnected, and, as I have indicated, constitute what has been called the zone of language. These centers are higher differentiations of motor and sensory centers, and are practically independent of the general centers to which they are related.

The acquisition of speech begins in the immitation of sounds heard, and, once developed, the auditory center for language ever afterward exercises a guiding and controlliug influence over the motor center for

speech. The power to express oneself in written language is the direct offshoot, in an evolutional sense, of the visual center for language, but it is not yet proved to have a definite center in the cortex.

We think in words, even when we give no outward expression in language of what is passing in the mind; in other words, we may distinguish what might be called *internal language* from language that is given expression in movement and sound.

Let us see what happens to internal language when injury or disease affects the zone of language.

A person whose organs of articulation are paralyzed thinks as well as ever and understands as before, but is forced to find some other avenue than that of articulate language to render his internal language objective, as by writing, etc. If a person becomes blind or deaf, if the zone of language be intact, internal language is not altered.

If the motor center of speech be destroyed, our patient can no longer express himself in words, though the organs of articulation be in a normal condition, notwithstanding the fact that he may understand what is said. If the auditory center of speech be alone implicated, the patient hears as before, but has lost all power to understand spoken words; and, further, he is no longer able to express himself in spoken language, because the natural guiding power of the auditory center is no longer present to aid the motor center, and what the patient says becomes incomprehensible jargon.

In a case in which the visual center of language is destroyed, the patient may see, but he has lost the power to understand written language. In educated persons there is also disturbance of the other related aspects of language, because of the intimate relation established between all three centers.

Destruction of the subcortical association-paths of these three centers also give rise to profound disturbances of speech.

Thus, in all these possible cases, the results outwardly are but the expression of the inner interruption of the reciprocal play of nervous energy between the centers; and internal thought may be so far arrested that the individual is devoid of the higher manifestations of mind.

This very schematic review of the affects of lesions of the zone of language, for offering which, to those familiar with the subject, I make apology, is but an example of lower associations, over which Flechsig places his three higher association-centers, which he calls the organs of thought.

I must apologize for having entered on controversial ground while treating of an historical subject.

In conclusion, permit me to quote, in free translation, the final paragraph of Paul Flechsig's celebrated address:[5] "But consideration of mental phenomena, from the mechanical standpoint, has much more than an immediate practical goal; now, as ever, one of the noblest sides of

our being, which lies in the impulse to the acquisition of knowledge that belongs to the mental centers of the brain of mankind, is incorporated in the longing to bring the domain of the mind into the natural order of things; and thus the actual progress of knowledge in this direction, with the compelling necessity of a natural law, leads ultimately only to an ideal conception of the universe. The more the immense entirety of knowledge embodied in mind-endowed creation, is unveiled to us, the more do we feel that behind this world of appearance mighty forces are at work, to which human knowledge would scarcely venture to assert its likeness."

REFERENCES.

1. Soury, Systeme Nervoux Central, Paris, 1899, to which work the writer is indebted for many of the quotations and references indicated in the text.
2. Pinel, Traite Medico-Philosophique sur l'Alienation Mentale, 2-ieme Edition, Paris, 1809.
3. Esquirol, Maladies Mentales, Vol. I, p. 113, Paris, 1838.
4. The Brain as an Organ of Mind, pp. 515–518.
5. Flechsig, Gehirn und Seele, Leipsic, 1896.

CHOLECYSTITIS.

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The period is not long past when an operator searching for calculi in gall-bladder or ducts and finding none, was forced to conclude that an error in diagnosis, resulting in an unnecessary operation, stood as an indictment against his skill in interpreting symptoms. In most instances a lame excuse or half apology preceded the retracing of his steps as he endeavored to repair the seeming damage. Later the thinking, more daring operators, drained gall-bladders presenting like characteristics with such evident satisfaction that they searched for former cases which had been explored only and drained them.

To these errors and correction of errors we owe our present understanding of cholecystitis, and while we are free to admit that the problem is not satisfactorily solved, yet the conditions are so clear by comparison that we deem it a matter of congratulation, and confidently look forward to more light.

The cases of cholecystitis which at present attract our attention, are those which on account of their explosive symptoms call attention to the gall-bladder region. These are classified according to previous conditions as primary and secondary. The first embraces those in which there exists no suspicion of previous involvement, consequently they are free from calculi. The second embraces those cases which, because of local or reflex symptoms, we are reasonably sure are complicated by cholelithiasis. So far as the treatment, or results without interference

are concerned, there exists no difference; we have various pathological sequelæ in each case in proportion to the virulence of the infection, or degree of occlusion maintained in cystic or common ducts. If confined to the gall-bladder alone, we may expect either hydrops or pyocholecystitis with secondary involvement of neighboring organs, and local peritonitis. It may rupture into some hollow abdominal viscus, into lung or free abdominal cavity.

It is of marked interest to follow the conditions favoring the development of two distinct types so apparently similar.

According to our present knowledge infection is a necessary factor in all diseases affecting the gall-bladder and ducts; in most cases, though so charged, it is not the initial cause. Experiments have demonstrated that even with a virulent infection, if the bile current is not slowed the infection is swept into the intestines and becomes harmless. Doubtless many infections of gall-bladder and ducts are aborted, the existence of calculi is an indication giving plausibility to this theory. Experiment, as well as clinical history, emphasizes the fact that attenuation of infection is a requisite for calculi formation. We are forced to admit that there is no method by which we can guage the virulence of an initial involvement except by its local or constitutional effect, and while this may be of the most dangerous and acute variety, it does not necessarily prove that the virulence of the infection is excessive, but that local or general conditions favor the retention of infected material within circumscribed limits. In further support of this theory we may call attention to cases of typhoid fever; it is reasonably certain that a large percentage of so-called relapses, usually charged to errors or excesses in diet, are cholecystitis. Many of our cases of intestinal perforation, under like conditions will be found to be of gall-bladder origin. That this should be a favorable period for gall-bladder invasion is explained when considered in connection with previously proven facts; first, that a slowed bile current is a requisite for ascending infection, and, second, that a slowed current depends unpon mechanical interference, muscular atrophy or enervation. These last two conditions are conceded to prevail in typhoid fever to a greater extent than in any other of our acute diseases; their influence being general, we may assume that the gall-bladder and ducts form no exception to this involvement.

Another link in the chain of cause and effect is the known influence of digestion upon hepatic secretion, and the storing of bile in the gall bladder during digestion, thus flushing the bile channels at nearly regular intervals, mechanically sweeping into the intestines ascending microorganism. The restriction of diet, during this disease, to small quantities of easily digested or pre-digested foods, which are absorbed in the stomach, or, if not, require but little aid through glandular secretion, removes another safeguard to infection.

Secondary cholecystitis, or that variety usually associated with chol-

elithiasis, is the type with which we are most familiar, on account of its greater frequency. In this form the presence of calculi in the sac whose lining membrane is impaired by previous microbic action, the stones acting as irritants, obstructing cystic or common ducts, is a condition ideal for results.

In considering this subject, we have touched only upon the explosive type of this disease, which is fairly well understood by those who have done exploratory work in the right upper quadrant. The field of future investigation lies further back, and embraces what we may at present consider as "deaf and dumb" cholecystitis. Of this latter type nothing at present is known. That its invasion is not accompanied by marked local or constitutional symptoms is evident, otherwise lithiasis would be defeated, and clinical history furnish some data. That indisposition accompanies this invasion there can be no doubt, and the question naturally intrudes as to whether, could it be recognized at this period, would it not be wholly amenable to medical treatment?

What are its symptoms? Is it referred to the digestive organs as a mild functional disorder, or may it consist only of malaise, chargeable in equal justice to malaria or la grippe? At what age may we ordinarily expect it? Our present knowledge, gauged by the usual period of lithic awakening, gives no definite idea; it may be seven or seventeen years.

The etiological factors, diagnosis and treatment, have been so fully covered by essayists during the past few years that it would be a waste of time to reiterate facts which are common property.

Exceptions to rules and departures from the ordinary course are not less peculiar to this disease than to others with which we have had a longer and more intimate acquaintance. The close association with neighboring organs favors mystifying reflexes which are calculated to deceive the most careful diagnostician. We need not look forward to the elimination of exploratory incision in these cases; on the contrary, as the value and safety of this simple procedure are recognized by profession and laity, it will be suggested by physicians and sought by patients.

The question is often asked, what influence is exerted by heredity? If none, why are certain families exempt, while others present a line covering several generations? Our old theories of humeral excesses or deficiencies, as influences in this direction are discredited as we recognize the natural and easy access through a possible patulous choledochus, a source of contamination connecting directly with point contaminated. We are familiar with the effect of heredity in transmitting deformities, such as syndactylism, which may mark entire families, may not congenital malformations in common duct at point of entrance into duodenum, favor free entrance of micro-organisms. The following family history would indicate such conclusions: Mr. H., gall-stone colic for many

years, died during attack at age of sixty-five years. Mrs. G. (daughter) had frequent attacks until married at age of twenty-two. They then ceased. Died suddenly at age of forty-two. Cause unknown. Had thirteen children, three died in infancy; of the ten living, oldest forty-one, youngest eighteen. Only one, aged twenty-five, is known to have escaped. The history in all is similar, differing only in degree or period of invasion. In one, attacks began in infancy, recurred frequently with present subjective symptoms of calculi in common duct. In all the others attacks began in childhood, and in two instances ceased after pregnancy. In one case malignancy is confirmed, in two others chronic invalidism exists; all have refused operative interference.

ACUTE APPENDICITIS.*

By J. M. Grant, M. D., St. Louis.

Appendicitis is no respector of persons. It will attack as quickly the occupants of the frescoed palaces of the rich as it does the occupants of the lowly huts of the poor. King Edward is compelled to yield as promptly to the surgeon's knife as does the meanest subject in his realm. It is only during the past sixteen or eighteen years that the medical profession has begun to understand this disease. There is still much to be learned. One of the gentlemen present asked me why I wanted to write on an old subject like appendicitis. Did I hope to say anything new? No, I only wish to write of the disease as I have found it. In my private practice I have treated from incipiency to termination 110 cases of acute appendicitis. I merely wish to make known the result of observations made in these cases. Before doing that will say something about the disease.

Appendicitis is due to bacterial infection, but there is no certain micro-organism that produces it. Pus cocci and baterrium coli are most frequently found, but these bacteria are found in the normal appendix, so that there must be an exciting cause. Any interference with the circulation of the appendix, any pressure from within or without, may be an exciting cause. Any swelling of the mucous membrane at Gerlach's valve may obstruct the secretion and cause trouble. A mass of feces is sometimes found, causing an obstruction, foreign bodies, such as seed, pins, pieces of tapeworm, may be an exciting cause. The laity generally attribute appendicitis entirely to foreign bodies engaging in the appendix. There are many people who avoid swallowing seeds as much as they do poison. Indiscreet eating, alcoholic excesses, exposure to sudden extremes of temperature, grip and traumatism may transform a latent appendicitis into an acute attack. Acute appendicitis varies

*Read before St. Louis Surgical Club, February 8, 1905.

from a slight inflammation to a gangrenous condition. One attack predisposes to a certain extent another attack.

Any ulceration that exists causes cicatrices that narrow the lumen of the canal, and may at any time obstruct the secretion. Adhesions that have taken place may cause kinking of the appendix, and consequently obstruction and renewed inflammation. It is possible after violent or repeated inflammation for permanent recovery to occur by cicatrization of the ulcer of the mucous membrane and obliteration of the lumen. Perforative appendicitis is favored by ulceration of the mucous membrane. Fecal concretions are supposed in many cases to cause the perforation. The thrombosis of vessels with the destruction of tissue is generally ascribed to the virulence of the bacteria. The mucous membrane may ulcerate largely and still the appendix not be perforated. In appendicitis there is always a certain amount of peritonitis. An exudate may be thrown out, a pronounced inflammatory thickening take place and a matting together of the small intestines occur, and still a speedy recovery follow. A certain amount of pus may form and be absorbed, it more frequently ruptures into the small intestines, rectum, gall bladder, uterus or urinary bladder. As pus forms and the pressure increases it attempts to escape at the point of least resistance.

It breaks down existing adhesions and may work up behind the kidney through the diaphragm into the lung and escape by coughing. It often occurs that adhesions do not form fast enough and the pus escapes into the general peritoneal cavity, causing septic peritonitis and death. In some cases of appendicitis the inflammation is so violent from the start that the appendix become gangrenous at once and a general peritonitis develops immediately.

Appendicitis develops most frequently in the young. Between the ages of ten and thirty years is the favored time. The decade between thirty and forty finds the cases much fewer. From forty to fifty safety is still more assured, and after the age of sixty has been reached an attack of appendicitis is very rare. In fact, at that age one half of the appendices are found to be nothing but strings of connective tissue. After maturity of the individual a change takes place in the mucous membrane of the appendix. An atrophy of the mucous membrane occurs and there is a tendency to agglutination of the walls and hence obliteration of the lumen.

Inflammation of the appendix is much less frequent in the female than in the male. This is, to a certain extent, due to the much better blood supply in the former. In the male the blood supply is from branches of the superior mesenteric artery, while in the female there is also blood supply through the appendicular ovarien ligament. With the better blood supply the chances of bacterial infection is diminished.

The usual symptoms of acute appendicitis are well known. In most cases of the disease, after twenty-four or forty-eight hours, the diagnosis

is comparatively easy. But an immediate diagnosis is of the utmost importance, so as to give the patient the benefit of an early operation when deemed advisable. Acute indigestion, ptomain poisoning, bilious colic, renal colic and acute obstruction of the bowels and intussusception often simulate appendicitis.

In making the differential diagnosis, the age of the patient and the history of the case are of the utmost importance. Intussusception is as a rule found in the very young. Acute obstruction, not due to hernia, is generally found in people past fifty. Biliary colic occurs most frequently in the female and at an age when appendicitis is not expected. The history of dietetic indiscretion is generally found in acute indigestion also in ptomain poisoning. In some cases the diagnosis is very difficult.

Appendicitis is a surgical disease but does not necessarily require operative treatment. In mild attacks, rest in bed, hot or cold applications, preferably the ice bag, and a little morphine to relieve the pain, can be cautiously administered. Morphine, in my opinion is of great value in many cases, but it masks the symptoms and consequently is sometimes very harmful. These mild cases generally recover in a week or two, but there is always a possibility of a sudden leakage producing disastrous results.

In another class of cases a thickening appears almost immediately over the appendix. If the fever persists, and the pulse ranges over 100 and is of poor volume, an abscess is probably forming, and the patient should be operated on as soon as possible. The class in which the attack is ushered in with great violence, vomiting, intense pain, rigors and immediate distension, should, in my opinion, be operated on immediately.

The appendix should, in all cases operated on, be removed, if possible to do so without increasing the danger too much. By simply opening the abscess without removing the appendix, you leave the patient still liable to an attack.

About sixteen years ago, after a personal experience with some appendix trouble, I decided to follow the conservative treatment. My determination was reinforced at that time by an authority whom I cannot recall. who claimed that 95 per cent. of all cases of appendicitis would recover without operation, and that of the remaining 5 per cent. about 3 per cent. would develop abscesses that could be operated upon with ease and that only 2 per cent. would die. I followed that course for a number of years and wish to report the result to you. Out of 110 cases of acute appendicitis there were five deaths. Forty cases had distinct thickening about the appendix, that finally disappeared, the patients recovering entirely. As a fair example of these cases I will report one.

J. B., aged ten years, was taken with a chill, cramping, vomiting. I was called twelve hours after attack and found temperature of 103, tenderness over entire abdomen, slightly more pronounced in region of

appendix. Next day temperature 102.6, pulse 118, distension of abdomen, tension of muscles in right iliac fossa and thickening could be felt in that region. The third day inflammatory mass could be felt; temperature 101.8, pulse 110. The fever persisted for eight days and all thickening did not disappear for sixteen days. In three weeks the boy was sitting up. That was three years ago. There has been no recurrence.

Thirty cases were of milder attacks, did not always have chill, all had considerable pain, which after twenty-four to forty-eight hours were marked in region of appendix. I will report one of these cases.

S. P., male, age thirty-two, sent for me in July, 1897. He was taken sick at his place of business twenty-four hours before. The attack began with nausea, pain and uncertain feeling in abdomen, no chill, but felt feverish. Thought he had acute indigestion, superinduced by eating late at night. My examination showed distinct tenderness upon slight pressure below McBurney's point. Deep inspiration caused pain in that region. Temperature was 101, pulse 106. The next day temperature was 101, pulse 90, and a slight thickening could be felt. Had no fever after fourth day, tenderness gradually disappeared and in a week patient was able to sit up. Two weeks afterward there was a slight recurrence of the trouble, and patient was kept in bed for one week. Since then he has had no attacks.

The rest of my cases varied very much in the intensity of the trouble. Out of all the cases only ten were females, only one was over sixty-five years of age, two were between forty-five and fifty, fifteen were between thirty and forty, and the rest were under thirty. The youngest was six years. Five cases developed abscesses, and were operated upon.

J. F., letter carrier, age thirty, married, came into my office early in May, 1896, had been taken sick an hour before. Complained of intense pain in right hip; could not stand erect; the pain shooting down the thigh at times. Examination showed some tenderness upon pressure in right iliac region; no special tenderness over thigh or hip. In recumbent position he kept the right thigh flexed. Temperature was 102, and pulse 110. Patient was sent home and to bed. Hot applications were applied, and owing to the intensity of the pain codeine in one-half-grain doses was administered. He suffered intensely for six days, keeping the thigh flexed all the time, and temperature was never below 102, pulse ranging from 108 to 120. The pain gradually passed from the thigh into the back. There was marked dullness on percussion in right iliac region. There was no change in contour on front of abdomen, but a slight fullness could be noticed in back over crest of ilium. There was no question but that the trouble started in the appendix, yet nearly all the symptoms pointed to the hip and back. I operated on the patient on eighth day at point mentioned over crest of ilium, and over a pint of foul pus was removed. The pain ceased immediately. A

drain was left in for sixteen days, and the patient made an uninterrupted recovery. Has had no sickness since.

I was called to see H. M., male, age twenty in October, 1898. He had been suffering about eight hours with violent abdominal pains and vomiting. Examination showed abdomen distended and general tenderness over it. Patient would have paroxysms of terrible pain; he would scream in agony, and great drops of sweat would break out on body. Administered one-half grain of morphine hypodermically. His temperature was 100, pulse 118. Saw patient again in four hours, and found him quiet, but tenderness more marked over McB.'s point. As soon as the effect of the morphine was gone the horrible pain returned, but was referred to the region of the appendix. Ice bags were applied and hypodermic of morphine used when absolutely necessary. There was great distention of abdomen and pronounced tenderness over region of appendix. After forty-eight hours patient was removed to hospital and prepared for instant operation. An abscess was found under calcum. Patient made a speedy recovery.

J. B., age twenty, male, student, sent for me in February, 1899. Gave a history of having had four attacks of appendicitis. One of them, a slight one, I had treated him for two years prior. He had been sick twenty-four hours with nausea and pain in region of appendix. Temperature was 102, pulse 100. There was tension of muscles in right iliac region and marked tenderness. In twenty-four hours a distinct thickening could be felt. Hot bichloride poultices were applied. Crede's ointment was used. The thickening rapidly extended over the lower part of abdomen. On seventh day Dr. Tuholske was called in consultation, and the treatment was continued for three days. The patient was then operated on, and a large quantity of pus evacuated. A drain was inserted, and left for three weeks. The wound healed nicely, and patient was discharged. Four days afterwards I was called, and found patient suffering, and had a temperature of 103°. Thickening could be felt in the iliac region. This increased for five days, when an incision was made in the same point, and a quantity of pus escaped. Tube was reinserted, and left in for two weeks. It was at least three weeks before all the thickening disappeared. Patient has not had any more trouble.

S. P., age sixty-five, broker. Was seen by me in 1900. For three days had been suffering with occasional paroxysms of abdominal pain. Had vomited twice, and had felt feverish. Examination showed tenderness in region of appendix, and some thickening was present. Gave history of prior attack. For eight days slight pain continued, and thickening gradually increased. Temperature was never over 100°, and pulse remained about 100. The right thigh was kept flexed. On the ninth day he was removed to the hospital and prepared for operation. An incision was made over swelling, and about a teacup of pus escaped.

The general peritoneal cavity was not opened. A drain was left in for three weeks. The fourth week the patient was about well, and was removed home. There was a slight wound not healed. Six days afterwards I was sent for, and found the patient had developed erysipelas. It spread rapidly all over the body, and the patient died from it on the fifth day.

The fifth patient operated on was my brother-in-law, G. M. In May 1902, I was called, and found him suffering from abdominal pains, most pronounced in regions of umbilicus. Eighteen years prior to that he had had an attack of serious illness which was probably appendicitis. This pain persisted for twenty-four hours, and then shifted to the right iliac region. The right thigh could not be distended without discomfort. A slight thickening could be felt in region of appendix. Pulse was 100, and temperature 99.6. The next day the symptoms were more pronounced, and Dr. Tuholske was called in consultation. I was greatly alarmed, owing to the fact that his son, my nephew, had died two years before of appendicitis. Dr. Tuholske advised operating, but preferred to wait a little. Ice bags were used. On the fifth day the pain became much worse and thickening more pronounced. Dr. Tuholske operated, and found an abscess situated behind the cæum. A drain was inserted, and patient made a speedy and perfect recovery.

I now wish to report the cases that died under my care.

H. C., male, aged eighteen years, was taken violently ill in July, 1900. Saw him eight hours after attack began. His pulse was 120, temperature 99°. Had marked abdominal distention and great tenderness over abdomen. Vomiting was frequent, hot pack and stove were applied to abdomen. One-eighth grain morphine administered hypodermically and given hot water to drink. In twelve hours tenderness was more marked over appendix region and patient was growing rapidly worse. Operation was urged, but family would not consent unless I would assure them the boy would recover. In this case there was never any elevation of temperature, pulse never below 120. Patient died within forty-eight hours from time I saw him of septic peritonitis. I had treated the family for nine years, knew it was the boy's first attack.

My nephew, G. M., aged twelve years, was taken sick July 6, 1900. I saw him a few hours after first complaint. He had pains in umbilical region, there was no distention of abdomen and no marked tenderness. Temperature was 100° and pulse 90. Patient was placed in bed, saline cathartic given and ice bag applied. The next day there was more tenderness over the appendix, and rectal examination revealed tenderness and some thickening in that region. Pulse 86 and temperature 99½°. On the third day Dr. Tupper was called in consultation and agreed that operation was inadvisable then, but favored it after recovery. For eight days patient suffered but little, ice bag controlled pain and no marked thickening developed. On the ninth day patient went into collapse and

died in six hours. I never for one moment had expected such a termination. Patient was apparently improving and was begging to be allowed to sit up. My views on conservative treatment were being revised.

Was called to see J. H., male, aged ten, on the day my nephew was buried. He had been sick for twenty-four hours with what his mother called biliousness. He was suffering great abdominal pain, vomiting frequently and had marked abdominal distension. Tenderness was marked near appendix. I advised immediate operation, parents insisted on delay; however, the next morning consented to operation, but boy had grown rapidly worse and I refused to operate. He died forty-eight hours after I first saw him of septic peritonitis. It was his first attack.

I. M., female, aged eight years was taken ill in May, 1904. I saw her twelve hours after attack began. She was vomiting and suffering excruciating abdominal pains. Abdomen was much distended and tenderness was marked over appendix, and right thigh was flexed. Pulse 120 and temperature 103°. Facial expression was bad. I urged immediate operation, but parents refused. Would not even allow her to be removed to hospital. I had attended the girl's brother one year before for violent appendicitis. I had urged operation in his case but parents refused and the boy made a good recovery. This doubtless influenced their decision in the little girl's case. However, she grew rapidly worse and died within fifty-six hours from the time I saw her. It was her first attack.

Mrs. F., female, aged nineteen years, was taken violently sick in October, 1902. She had similar appendix symptoms. Was at once removed to hospital and prepared for operation. She insisted on waiting for arrival of a relative and died within forty-eight hours without operation.

These five patients all died in their first attack. Four were very violent from the beginning and death occurred in each case in less than four days. One was apparently not severe and the patient had every appearance of recovery, but was taken violently worse on the ninth day and died. I saw some patients apparently as violently ill as any of these, yet they made good recoveries without operation. I will cite as an illustration the case of C. R., plumber, aged twenty-eight. I was called hurriedly at night to see him in December, 1903. As I rang the door bell could hear him screaming with pain. He had been taken sick an hour before and was rolling on the floor in agony when I reached him; he was practically in collapse and it was not possible to make any satisfactory examination. He was given one-third of a grain morphine hypodermically, and the dose was repeated in twenty-five minutes as patient was no better. Abdominal muscles were as rigid as bar of iron. My diagnosis was perforating appendicitis. Family were willing for operation, but the next morning patient was better and changed his mind. There was abdominal distention and great tenderness over appendix.

Thickening developed in that region, but the patient was entirely well in ten days.

In all of my cases a saline cathartic was given the first day, and in most of the cases ice bag gave most relief of all local applications. I have been able to keep track of about 75 per cent. of these cases. The rest have drifted away. Eight of them have had recurrent attacks to my knowledge, and two have been operated on in the interim and made good recoveries. I want to emphasize certain things observed in these cases. All of the deaths occurred in the first attack and the patients were young, the oldest being nineteen. Four of the cases operated on for abscess had prior attacks, three of them were over thirty years and one sixty-five. Only 10 per cent. were females and two of the deaths were of that sex. The temperature was no criterion to go by, the pulse being a better indication that abscess was developing. Some of the apparently most violent cases would recover without operation or abscess developing. Pronounced inflammatory thickening would disappear in two or three weeks.

After the third consecutive death in 1900 I abandoned the ultra conservative treatment and thought that many cases should be operated on at the very beginning of the attack, but the question that confronted me, as it does every surgeon, is which case should positively be operated on immediately; which should not be operated on until after the attack, and which cases should be let alone unless repeated attacks occurred. I hope that some gentleman in this surgical club will, by his pathological knowledge, diagnostic skill and surgical acumen, eventually solve the problem. If he does the laurel wreath of fame will crown his brow and his name will be a household word in the medical profession long after our bodies lie mouldering in the grave.

A SIMPLE HEAT METHOD OF STERILIZING AND STORING CATGUT—PRELIMINARY REPORT.*

By Willard Bartlett, M. D., St. Louis, Missouri.

Although one year's work with catgut sterilized in the manner herein described has been eminently satisfactory, and although bacteriologic tests have proven the reliability of the process beyond doubt, still the desire to embody the experiences of other surgeons in my complete report on the subject prompts me to publish this preliminary article. The treatment of the raw catgut is as follows:

1. The strands are cut into convenient lengths, say thirty inches, and made into little coils about as large as a silver quarter. These coils in any desired number are then strung like beads on to a thread so that the

* Read before the St. Louis Surgical Club.

whole quantity can be conveniently handled by simply grasping the thread.

2. The string of catgut coils is dried for one hour at a temperature of 180° F., and then for a second hour at 220° F., the change in temperature being gradually accomplished.

3. The catgut is placed in liquid albolene, where it is allowed to remain until perfectly "clear," in the sense that the term is used in the preparation of histological specimens. This is usually accomplished in a few hours, though it has been my custom to allow the gut to remain in the oil over night.

4. The vessel containing the oil is placed upon a sand bath and the temperature raised during one hour to 320° F., which temperature is maintained for a second hour.

5. By seizing the thread with a sterile forcep the catgut is lifted out of the oil and placed in a mixture of iodine crystals, one part in Columbian spirits (deodorized methyl alcohol), one hundred parts. In this fluid it is stored permanently, and is ready for use in twenty-four hours; the thread is then cut and withdrawn.

It seems to me important that the gut should be thoroughly "cleared" before the oil is heated, in order that we may thus be certain that the temperature of the center of the strand becomes as high as that of the oil outside. It may be noted further that I do not remove the oil from the gut before placing it in the storing solution. This is done purposely, since catgut which is perfectly free from oil is so very sensitive to the action of water that it readily untwists and becomes tangled after it is used in a wound but a few moments. This storing fluid simply takes off enough oil from the exterior of the strand so that it is not too slippery for use, and the albolene being a bland, non-irritating substance, there is no reason why it cannot be safely left in the gut. The iodine rapidly permeates the strand; the same will be found stained black after a few hours, and consequently the surgeon will have the assurance that he is introducing an antiseptic as well as a thoroughly sterile suture material.

Formerly I used the well-known alcohol-ether-iodoform mixture, which has been so useful in the hands of the Mayos, Ochsner, Moynihan and others, but its use necessitates that the catgut shall stand for a long time before it is ready for use, and chemical analysis has shown me that scarcely 1 per cent. of iodine is deposited in such catgut after it has stood a whole year.

Although I should be far from adopting a surgical procedure simply because it is economical, it will strike anyone that the chemicals here used are very cheap. The liquid albolene can be used repeatedly, and the iodine solution costs just one-fourth as much as the alcohol-ether-iodoform mixture.

As far as the tensile strength and pliability of the finished product are concerned, I may state that this leaves nothing to be desired I have made a large number of breaking tests, and have found no other heat method to produce a stronger strand. Catgut treated in this way lasts in the tissues about as long as the same sized strand treated by most of the other methods in vogue at the present time, the No. 2 gut generally requiring about one week for its absorption. I have not found that the material so treated deteriorates at all with age, neither as far as strength or sterility is concerned. In fact, I have recently had a large number of strands bacteriologically examined from a jar which had been frequently opened during the past year, and have yet to find the first one infected or in any other way undesirable for use in surgery. The complete list of the bacteriological experiments and tests of tensile strength to which this catgut has been subjected will appear at a later date.

EDITORIAL COMMENT.

THE ST. LOUIS CHARITY HOSPITAL SYSTEM.

It is seldom indeed for the medical profession in a community to be moved as a whole by some definite purpose. So rare a phenomenon deserves and invites comment.

The system under which the city charitable medical institutions of St. Louis has been administered is so primitive and so antiquated that no one has found the courage to come to its support against the attacks which have lately been directed against its further continuance. The very obviousness of the system's inherent defectiveness and evil seems to have engendered a certain kind of passivity in the minds of the medical profession, as though a thing so devoid of the material for a just defense must be endured with patience until it dies of its own weakness. What has escaped notice heretofore, or at least escaped the notice of a large body of physicians, is simply this: A medical institution may, from the point of view of medicine, be a thing to blush at, a thing to avoid in conversation, yet be the stronger in the political life of a city just for that reason. Graft grows in places that are diverted from the purpose of their origin. The more the City Hospital decreased in efficiency as a medical institution for the care of the sick and for the education of physicians and students, and as a place where original study could be pursued, the more it became a valuable political asset.

The office of superintendent might easily be in the hands of a very capable man (as, on the whole, it has always been), yet, apart from this, nothing need be done to weaken its efficiency as an adjunct to some political machine. To make it of the greatest value to the health commissioner who happens to be in office, for he has the sole right of appointment, from the stretcher carrier to the assistant superintendent. From the moment of his taking office the superintendent ceases to be a factor in the reform of the system, for the very obvious reason that in the four years of his term he wishes to pursue, without interruption, his education in surgery. So the endless chain has gone along, each succeeding administration strengthening the precedent of bad conditions; and, let it be noted, that with each administration likewise has developed a steady increase in the efficiency of the hospital as a machine adjunct to whatever political party happened to be in power.

Yet medicine, as other callings which attract men of a certain type, contains always some few among its body in whom the spirit of reform and change is a moving force. Such men, to be effective, possess that small tincture of hope and optimism which must lie behind all successful efforts towards a change for the betterment of existing conditions. When the time is ripe and when the spirit is abroad, it is to them that

the power of massed effort turns for guidance, as unconsciously, perhaps, as is their own awakening at the proper opportunity. This then makes the psychological moment; and, if signs are not in error, that moment has come to St. Louis medicine, and it has sounded in no uncertain tones at the meeting of the City Hospital Alumni Society last Thursday. Given the proper time, the leading spirits, and the turning to the light of the great body of thinking men, then things are bound to happen. Before this *trias*, selfish opposition falls to the ground. In the story of human achievement against the power of established wrong, these three elements are always seen. In our own community, small though it is in comparison to the world's larger experience, these same conditions are seen reflected in miniature. In this movement against the prostitution of medical charities for the purpose of selfish ambition and political profit, history will repeat the lesson it has so often taught. Institutions created and developed in error by the power of the people, can be changed by the use of that same power. To make of this movement a popular protest is the secret of its successful issue, and the medical profession of this city must face this fact—that they are a part of the community, and that to it the final appeal must be made.

DR. OSLER'S ADDRESS.

The publication in the last number of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION of a full abstract of Dr. Osler's address, which has called forth so much newspaper discussion, will set at rest the absurd statements and interpretations made not only by mere newspaper reporters, but by medical men (prominent though they be) who consented to discuss without reasonable information upon the subject, such bald statements as the newspapers were pleased to bring them. Moreover, as the JOURNAL in its editorial says, "The whole affair has been a reflection on the managing editors of our newspapers," and, we would add, upon the medical men who have ventured to criticize without knowing a syllable of context.

Taking as our theme in his many-sided address, the desirability of a fixed time limit during which a professor may teach at our universities, Dr. Osler states that he has in this regard two fixed ideas which may best be presented in his own words: "The first is the comparative uselessness of men above forty years of age." "Take the sum of human achievement in action, in science, in art, in literature—subtract the work of the men above forty, and while we should miss great treasures, even priceless treasures, we would practically be where we are to-day." The effective, moving, vitalizing work of the world is done between the ages of twenty-five and forty years." . . . "In the science and art of medicine there has not been an advance of the first rank which has not been initiated by young, or comparatively young, men. Vesalius, Harvey,

Hunter, Bechat, Laennec, Virchow, Koch—the green years were yet on their heads when their epoch-making studies were made."

"My second fixed idea is the uselessness of men above sixty years of age, and the incalculable benefit it would be in commercial, political, and in professional life if, as a matter of course, men stopped work at this age." As it can be maintained that all the great advances have come from men under forty, so the history of the world shows that a very large proportion of the evils may be traced to sexagenarians—nearly all the great mistakes, politically and socially, all of the worst poems, most of the bad pictures, a majority of the bad novels, and not a few of the bad sermons and speeches. It is not to be denied that occasionally there is a sexagenarian whose mind, as Cicero remarks, stands out of reach of the body's decay." "The teacher's life should have three periods—study until twenty-five, investigation until forty, profession until sixty, at which age I would have him retire on a double allowance. Whether Anthony Trollope's suggestion of a college and chloroform should be carried out or not, I have become a little dubious, as my own time is getting so short."

It will be seen that Dr. Osler simply argues from the historical standpoint, the impaired capabilities of men above forty, especially for original work of moment, though not denying that many men above that age may be more capable of achievement than some under forty, but that the achievements in all directions that have meant essential advance in the knowledge and abilities of the race have in the overwhelming number of instances been worked out by "young or comparatively young men." Moreover, as may be gathered from one of the last quotations, the work of the individual man, which represents the bulk of his experience, is done before he is forty, and that the results and applications of this experience appear in the succeeding twenty years, which Dr. Osler designates as the period of "profession." It is then, too, if at all, that his labors gain wider recognition. To quote once more: "To modify an old saying, a man is sane morally at thirty, rich mentally at forty, wise spiritually at fifty—if at all."

The greatest misfortune, however, in the manner in which the newspaper discussion has arisen, is the fact that the allusions which have given rise to it, form only a small part of an exceptionally valuable address on the development and the ideals of medical education in America. Ignoring, probably incapable of appreciating, the spirit of the address, the newspapers have utilized their allusions as a sensational catchword, with a mendacity which too often characterizes other phases of their work requiring perception and delicacy. And be it said to our shame, reputable members of our profession have permitted themselves to fan the flame.

MEDICAL AND SURGICAL PROGRESS.

INTERNAL MEDICINE.

IN CHARGE OF

JESSE S. MYER, M. D.

Observations on the Blood Pressure in Disease.—MORRIS and EDMUNDS (*Medical News*, January 14, 1905).—The present tendency in medicine is to substitute methods of precision for methods of approximation. The greater the accuracy attained in studying the various phenomena of the human organism the better will be our insight into, not only physiological, but pathological manifestations. The writers review the history of the sphygmomanometer and its methods of application. They have accepted Gaertner's figures as to the normal blood pressure in an individual as approximately correct, from 100 to 130 m. m. Hg. The pathological condition which seems to affect arterial tension more than any other, is a diseased condition of the kidneys. Too few cases of acute nephritis have been reported to permit of definite conclusions on this subject. In chronic interstitial nephritis the universal clinical observations have been confirmed by the sphygmomanometer. Every one working on this subject have reported high pressure in this disease. To summarize the effect of renal disease on pulse tension, it may be said that an acute inflammation or degeneration may or may not raise the pressure, but that a chronic interstitial nephritis, practically without exception, causes an increase, which, if it terminates in uræmia, may give still higher readings. As the uræmic symptoms disappear the pressure becomes lower. Chronic parenchymatous nephritis probably does not cause elevation of pressure as a rule.

In chronic valvular diseases of the heart the findings have not been altogether uniform. It seems probable that considerable advance may be made in the study of this group of cases by the determination of diastolic as well as systolic pressure.

Next to nephritis there is probably no disease which excites greater interest in connection with observation of arterial tension than exophthalmic goitre. Increased arterial pressure has been found quite constantly. In the males examined the pressure averaged about 164 m.m.

In anæmia, whether primary or secondary, a majority of the work has shown that the pressure is lowered. In a series of eleven cases of pernicious anæmia, the writers had three which showed a normal tension, the rest being subnormal.

One of the most important fields for blood pressure estimations, is, without doubt, in typhoid fever. If further work confirms the observation thus far made the changes of blood pressure will be a very great aid in making the diagnosis of perforation and other complications.

The role which arterio-sclerosis plays in the production of high arterial tension has probably been much exaggerated. The writers believe that the pressures found in arterio-sclerosis are influenced little by the con-

dition of the arterial wall, but rather are dependent upon, not only the heart but also accompanying conditions, possibly the result of disturbances of metabolism, which are as yet little understood. Testing the effect of certain drugs upon the arterial tension is another important field for the use of the sphygmomanometer. Much has already been done along this line.

The authors suggest a wider employment of the instrument, with the publication of results. It is only in this manner that the usefulness of the spygmomanometer can be fully developed and appreciated.

Specific Agglutination of Streptococci from Scarlatinal Angina and from Extra Buccal Primary Affections.—Rossiwall and Schick (*Wiener klinische Wochenschrift*, No. 1, 1905).—It is generally conceded that the port of entrance for the infection in scarlet fever is in most cases the tonsils, and that the angina in these cases is the primary affection. Occasionally, however, cases are met with in which the primary affection is extra buccal, for instance, in scarlet fever infections of wounds, of the puerperium, of burns, etc.

Streptococci taken from both of these classes of cases were tested as to their agglutination when treated with the Moser serum. This serum is obtained from horses immunized against streptococci obtained from the blood of individuals with scarlet fever. It was found that this serum not only influences the course of the disease, but has a specific agglutinating power on streptococci obtained from the blood of scarlet fever patients.

The authors satisfied themselves that the Moser serum had such an influence on streptococci obtained from cases with extra buccal primary affections, but not on those obtained from the tonsils. They conclude, therefore, that the streptococci in the deposit on tonsils in scarlet fever are not of one kind, but that they belong to different groups. Every streptococcus, therefore, found on the tonsils of scarlatinal affections is not to be brought into relationship with the affection.

Two Cases of Exophthalmus Bilateralis, and a Case of Chorea Cured by the Removal of Adenoid Vegetation.—Holz (*Berliner klinische Wochenschrift*, No. 4, 1905), after defining Basedow's disease, describes two cases which he interprets as such, in children of seven and nine, respectively. In the first case there was a marked degree of exophthalmus, accompanied by Graefe's and Sellwag's signs. Ten days after the removal of adenoids the bilateral exophthalmus had entirely disappeared. In the second case, the same conditions existed. The removal of hypertrophied tonsils had no effect whatever upon the eyes; but the removal of the existing adenoids caused the exophthalmus to disappear within fourteen days.

The author concludes therefore that there is a close relationship between bilateral exophthalmus and adenoid vegetations. He believes that exophthalmus when not due to mechanical causes, is in itself sufficient to permit of the diagnosis of Basedow's disease. He considers the disease in its different variations an intoxication of the central nervous system, due to abdominal internal secretions, and that it can be brought about by adenoid vegetations. The same is true of epilepsy and chorea.

When such is the case, these affections can be cured through the removal of the vegetations.

Concerning the Demonstrable Changes in the Heart, and Pericarditis Following Attacks of Angina Pectoris.—KERING (*Berliner klinische Wochenschrift*, No 1, 1905), calls attention to the scarcity of references in the literature to the clinical findings which follow attacks of angina pectoris. These changes are of great significance, since they not only throw light upon the nature of the attack, and upon sudden deaths, but they also teach us how to care for one thus affected.

The author recognizes three groups of cases, based upon the physical findings. In the first group are included those cases in which an increased hypertrophy of the heart is found, together with a slight febrile condition. The fever is usually due to myocarditic changes.

In the second group belong those cases in which gross changes take place under the very eyes of the observer. These usually consist of dilatations of portions of the heart and are also accompanied by slight fever. He cites a case in which there occurred a dilatation of the left ventricle.

To the third group belong the cases in which an acute pericarditis follows immediately after the stenocardic attack. A series of cases of this group are reported here.

A fourth group might be added in which there are no demonstrable clinical changes at all, but in which the myocardium is involved. This is manifested by a temporary diminution of the urine, and the development of edema.

The author's observations leads him to the conclusion that patients who have had even slight attacks of angina pectoris should be kept in bed for days or weeks, as the occasion demands. He believes that in this manner a sudden termination may be prevented or deferred for a considerable time.

Endemic Occurrence of Myeloid Leukemia.—ARUSPERGER (*Muenchener med. Wochenschrift*, No. 1, 1905), observed in his clinic three cases of typical myeloid leukemia within two years from the same neighborhood. This prompted him to investigate further to see if there were other cases in this community, and whether there was an etiological factor which could explain their existence. He discovered two other cases there, and succeeded in obtaining from physicians the histories of six others. He was unable, however, to find any definite cause for their existence. The conditions in and around Pforzheim and Muhlacker, where the cases occurred, were just about as they were in other small towns in Germany.

The Quinquaud Phenomenon.—LEVIONIK (*Wiener klinische Wochenschrift*, No. 51, 1904).—This symptom is elicited when the fingers of the patient are spread out and the finger tips are lightly laid upon the palm of the hand of the observer. If present, after a few seconds a rubbing, grinding or crackling sensation is experienced with greater or less intensity. Many authorities bring this symptom into relationship with alcoholism. The writer investigated the phenomenon in 112 men and 88 women, and found that this could not be considered an absolute rule.

He found it present in many abstainers and those who drink moderately. He considers it a sort of phalangeal crepitation in cases in which there exists a tremor of the hand. When the tremor is present in one hand only, the symptom is observed in that hand and not in the other.

SURGERY.

IN CHARGE OF

WILLARD BARTLETT, M. D.

A Contribution to the Pathology of Basedow's Disease.—PAESSLER (*Mitteilungen aus der Grenzgebieten der Med. und Chirur.*, Band 14, Heft 3).—This experimental article has for its subject the supposed direct toxic effect of the thyroid secretion upon the human organism. The author secured a goitre just after it had been removed from an exophthalmic case, the patient having been operated upon during an exacerbation of the trouble, consequently all conditions necessary to prove or disprove the poisonous qualities contained in the gland were fulfilled. He considers the pulse an accurate indication of the degree of disturbance present, hence he was very careful to note the pulse at different times, after injecting the above mentioned diseased thyroid substance into the carotid arteries of rabbits and dogs. To his great surprise he found that such injections produced absolutely no disturbance in the animal's pulse, although he will not thus attempt to disprove the thyroid theory in the disease. He merely proves that rabbits and dogs are not affected by the human thyroid substance. At any rate he considers himself safe in saying that the thyroid poison, whatever its nature may be, is not a simple direct action, such as we ascribe to the ptomaines.

A New Method of Performing Gastroenterostomy.—GOULD (*Boston Med. and Surgical Journal*, January 19, 1905).—After a large number of experiments upon animals the author comes to several conclusions which are directly intended for the human subject, and though a perusal of his article will convince anyone of the worth of his work, still it seems hardly possible to compare the results obtained upon animals with what may be expected from the human intestine. He does not close the pylorus, but does a supplementary enteroenterostomy and places the constriction in the proximal loop. His method of doing the gastroenterostomy differs from the posterior suture operation usually in vogue therein, that after making a longitudinal incision along the greater curvature of the stomach, he seizes two points at the middle of each lip of the same and uses these as the ends of the suture lines which connect the stomach with a longitudinal opening in the gut. The idea of all this is to prevent secondary closure of the opening. The operation has been done upon one human subject, but the convalescence is stated as having been so very slow that one is hardly prejudiced in favor of the procedure.

Ten Observations of Foreign Bodies in the Bladder, Stone Excepted.—CHEVALLIERE (*Bullet. et Mem. de la Soc. de Chirur. de Paris*, January 25, 1905.)—To the large number of cases of this kind already upon record our author adds ten, of which a part are decidedly unusual. The first was a nozzle of a syringe which was introduced by mistake into the urethra of a woman and which slipped into the bladder. This was discovered by the introduction of the finger, there being a well grounded fear against cystoscopic examination, and the same was removed without trouble through the urethra. The second consisted of the tip of a bougie which slipped into the bladder of a woman during examination and was removed without difficulty by the forcep. The third was an object of the same kind removed in the same way. The fourth was a rubber tube which was removed by the natural channel. The fifth was the tip of a bougie which was also removed through the urethra. In addition to the five above, M. Bazy, at the same meeting, reported five other unpublished cases of this kind. The first was the nozzle of a syringe in a female. The second was the bulb of an exploring bougie, the third a rubber tube, the fourth a Nelaton sound, the fifth a piece of chalk.

Anastomosis Between the Stomach and Esophagus, Also Resection of the Thoracic Esophagus.—SAUERBRUCH (*Zentralbl. fuer Chir.*, January 28, 1905).—The author, who is already well known for his surgical work upon the chest while the subject and operator are within a partial vacuum, gives us in this article a further extension of his work along this line. His idea is to safely accomplish what has hitherto seemed impossible on account of sepsis, leakage and pneumothorax. He makes an anastomosis by cutting down upon the diaphragm, pulling up the fundus of the stomach, pushing a Murphy button down from the mouth through the esophagus into the stomach and then grasping the tube of the same through a little hole in the wall of the stomach. The other half of the Murphy button is pushed down the esophagus to the desired point where the wall is slit over it and its tube pushed through. The two halves are now united and naturally an anastomosis easily secured. In order to secure earlier adhesion of the parts anastomosed, Lugol's solution is freely painted upon them. It is very important that the fundus of the stomach be tightly sewn to the diaphragm, since three of the author's thirteen dogs died on account of a total hernia of the stomach into the chest. The esophagus is resected in the following manner: After the anastomosis has been made in the way above described, the esophagus is cut through and inverted just below the button, and, after the desired portion has been removed, the lower extremity simply turned down into the stomach, very much after the manner that one disposes of the stump of the appendix. The ideas expressed in the article are certainly intensely interesting; still, they have not yet been tried upon the human.

Interscapulothoracic Amputation.—COBB (*Annals of Surgery*, February, 1905).—This extensive operation was done upon a young man for an osteosarcoma of the upper end of the humerus. The interesting point of the whole operation was that no shock supervened, simply because the blood supply to the parts was cut off at first and then the brachial plexus was injected with cocaine before it was cut across. A preliminary diag-

nostic incision had been made and when the specimen was examined later all of the veins were found to be full of sarcomatous thrombi, which undesirable condition probably resulted from the incision. The middle third of the left clavicle was first divided subperiosteally and after the subclavian vessels had been found and ligated there was practically no bleeding during the operation. Various methods of controlling hemorrhage in this operation are discussed by the author, but the one he used seems to him the one which should be most favorably considered. Unfortunately, the case died of recurrence about a year later.

A Case of Dermoid Cyst in the Region of the Shoulder.—DELAGENIERE (*Archiv. Provinc. de Chir.*, January, 1905).—A man thirty-three years of age with a large tumor in the left axilla applied for surgical treatment. He said that he had noticed nothing of the mass until about a year before, when he attempted to lift a very heavy sack, since which time the growth had been gradual. It was fixed upon its base, was painless and slightly fluctuating. In removing the mass it was impossible to completely dissect it from the muscles of the region, consequently fibers of them were left adherent. In the first costal interspace the pleura was torn and adhesions to the lung divided, consequently it is seen that a rather difficult operation was necessary. On examination the tumor proved to be a dermoid cyst, full of the characteristic sebaceous material. It was impossible to tell before the operation whether one had to do with a lipoma, a cold abscess or a cystic tumor, and the author is of the opinion that the mass originated from the lung on account of the fact that it gradually widened the first interspace through which the attachment came. He has been unable to find a similar case anywhere in the literature.

Resection of the Carcinomatous Stomach.—KELLING (*Archiv. fuer klin. Chir.*, Band 75, Heft 2).—The author has made fifty-four resections of the stomach, consequently his opinions must possess definite value. The operation is absolutely contraindicated in patients of great age or those who are the subject of other severe disease. Ascites is an absolute contraindication, as is, of course, glandular swelling in the neck or elsewhere. Metastases in the skin of the abdomen are always to be looked for and the rectum must always be examined for a similar tumor, as must the ovaries and uterus in the female. Icterus speaks decidedly against radical operation, as does any interference in swallowing. The reaction of the stomach contents is of very decided importance. An acid reaction protects the patient very decidedly against infection, since the acid stomach contents does not contain nearly so virulent germs as when no acid, not even lactic acid, is found. This last is a common accompaniment of gall stones even where there is no stomach cancer. Resection may be done even where there are metastases in the liver, since it gives the patient so much more and so much longer relief. Kelling has tried some of the most astonishingly complicated processes looking toward a complete gastrectomy. They must be read in the original, however, to be appreciated. It is worth noting, however, that he lost five consecutive cases of this kind. He tried various ways of sucking the abdominal defect dry of secretion, but was not very successful in this after the

stomach had been removed. The article, however, contains many valuable, practical hints and is worthy of perusal.

Dangers from the Indiscriminate Use of Cathartics in Acute Intestinal Conditions.—HARRIS (*Journal of the American Medical Associaton*, February 25, 1905).—The effort is here made to impress upon the reader with justice the idea that it is not so much the fact that the bowels do not move, but the condition which prevents them from moving which constitutes the danger for the patient. Hence there is no earthly use, and indeed positive harm in hammering away at the symptom without due regard for the cause. We simply succeed by cathartics in further distending the already overloaded bowel, rendering it more permeable to the passage of germs and generally reducing the patient's vitality. In one case at the author's hands, improper treatment produced so much blood in the stool as to influence him in a doubtful diagnosis to consider the probability of intussusception and he opened the abdomen of a normal individual. It fortunately did no harm, however, but illustrates one of the dangers of cathartics in these conditions.

The Operative Treatment of Ruptures in the Quadriceps Extensor Muscle Above the Kneecap.—QUENU and DUVAL (*Revue de Chir.*, February, 1905). —The authors have collected nineteen of these cases from the literature, to which they have added three of their own, and they are heartily in favor of operative treatment for the condition on account of the excellent prognosis assured, while, on the other hand, not much can be said in commendation of an expectant therapy. The amount of tearing has varied naturally in different cases, but a complete rupture is more common than any other variety. Involvement of the joint is common, as evinced by the fact that hemorrhage into the joint cavity is usually an accompaniment of the lesion. The amount of separation between the parts, of course, varies greatly, as it does in fractures of the patella, which is in reality the same kind of an injury. Double ruptures have been observed, Walker having reported six cases of this kind. In the twenty-two cases reported there was no mortality and not a single bad functional result. The method of suture preferred by the authors is very similar to that employed where a wire loop is placed around the edge of the patella. This is known as a transverse suture as opposed to the ordinary multiple vertical variety. The deep transverse fibres in the muscles and tendons of this part prevent a transverse suture pulling through. In fact, the authors state that a pull of forty pounds will not loosen such a suture. Silver wire has most commonly been used by them.

The Indications for the Goitre Operation and Its Technique.—SCHWYZER (*The Northwestern Lancet*, February, 1905).—Some valuable points appear in this article. The author believes that goitre operations for cosmetic purposes should be done only by men who are so thoroughly competent that they do not in any way endanger the patient. He uses local anesthesia for every case on account (in addition to the usual reasons given) of the fact that hemorrhage results from the slipping of ligatures during coughing and excitement after operation. He also fears the

lung changes which result from general anesthesia. The superior and inferior thyroid arteries should be ligated as early as possible, then there will be no difficulty in controlling hemorrhage during the rest of the operation. The author was formerly an assistant of Kocher, consequently his word carries weight.

Hæmatoma in Tendon Sheaths.—KUETTNER (*Beit. fuer Clin. Chirur.*, Band 44, Heft 2).—This rare but extremely important lesion appears in the literature in only two instances. The author saw it in one case where a young man fell on the outstretched hand, and in a short time the dorsal tendon sheaths were filled with blood, which disappeared in the course of some ten days by the use of massage, etc. No permanent disability resulted, and the patient was soon free from pain, which was exceedingly severe at first. The sheaths involved were those of the extensor communis digitorum, extensor indicis and the extensor pollicis longus. The reasons for making the diagnosis were three, namely, the appearance of the swelling at once after the injury; second, its rapid disappearance as a result of compression and massage, and, third, the appearance of sigillation a few days after the injury.

DIAGNOSIS.

IN CHARGE OF

A. E. TAUSSIG, M. D.

Diagnosis and Therapy of Renal Tuberculosis.—L. CASPER (*Deutsche med. Wochenschr.*, 1905, No. 3).—The clinical methods by which it has become possible not only to make with certainty the diagnosis of renal tuberculosis, but also to determine whether the disease is bilateral or unilateral and, if the latter, which side is involved, are of comparatively recent date. Every case of renal tuberculosis begins unilaterally, and spreads to the bladder and to the other kidney only after the lapse of time. If diagnosed while still unilateral, a nephrectomy may result in a radical cure, and this explains the great interest now taken in the early diagnosis of this disease.

The subjective symptoms, such as pain on urination, frequent micturition, pain and tenderness in the region of the kidneys are singly of little diagnostic value, since they occur in other lesions of the urinary apparatus. The same may be said of attacks of renal colic which may result from ureteral obstruction due to any cause, whether stone, cheesy masses or kinking of the ureter. Nor is the general appearance or the subjective feeling of the patient of importance. An individual with well-marked renal tuberculosis may appear and feel himself to be in perfect health.

Of the objective signs the condition of the urine is of chief importance. It contains pus, macroscopic or microscopic blood, casts, albumen, epithelium. All these constituents, however, occur in other conditions and may be missing in tuberculosis. Pus cells alone are hardly ever en-

tirely absent. The only pathognomonic sign is the finding of tubercle bacilli, which according to Casper may be found in 80 per cent. of these cases. Those cases, however, in which in spite of careful search no tubercle bacilli can be found are of especial diagnostic difficulty. In such cases it must be remembered that the absence of all bacteria in a pus urine is a very suspicious sign. Tuberculous urine, containing no tubercle bacilli, is characterized by the absence of all other micro-organisms. This is similar to the findings in pleuritic effusions: those in which the fluid contains neither tubercle bacilli nor other bacteria, are usually of tuberculous origin. Such a sterile purulent urine should therefore make one suspect renal tuberculosis, and should lead to the making of cultures and to the inoculation of animals.

The former has been worked out by Suter. He found that if urine obtained in a sterile manner by means of a catheter be spread on ordinary culture media, a growth of one or more bacteria is always obtained in ordinary pyogenic infections. In tuberculous urines, on the other hand, there is usually no growth since tubercle bacilli do not multiply on the ordinary media, and such a negative result obtained with a purulent urine speaks for the diagnosis of urinary tuberculosis. On the other hand, mixed infections are not very rare, so that a tuberculous condition may be present even where the culture shows the growth of pyogenic micro-organisms.

Entirely trustworthy results can only be obtained by means of animal inoculation. Casper recommends the following method originated by Belgard. A number of guinea-pigs are each given an injection of 0.5 g. of Koch's tuberculin T. R. If they are tuberculous this is an absolutely fatal dose, so that the survivors may be positively known to be free from tuberculosis. One of the latter is given the washed urinary sediment suspended in a few drops of sterile water intraperitoneally, another is given the same amount under the skin. If the urine contains tubercle bacilli the latter animal will, after three to four weeks, have palpable, often broken-down glands near the fore or hind legs, according to the site of the injection. The guinea-pig, inoculated intraperitoneally, should be killed after six weeks. It will be found to have a miliary tuberculosis. If both animals are free from tuberculosis, the urine positively contained no tubercle bacilli, and it may be stated with certainty that the pyuria is not due to a tuberculous infection.

Having established the tuberculous nature of the case, it next becomes necessary to decide which kidney is involved. To a certain extent the patient's subjective sensations may help us here. Pain may be entirely absent, but if present it is, unlike the pain of kidney stone, always referred to the affected side. The palpation of the kidney, too, is of great importance and often gives significant information. Nevertheless, its value can easily be overestimated. Not only cannot the kidneys always be felt, but an enlarged kidney need by no means be diseased. Casper has recently seen two cases in which the tuberculous kidney was small, whereas the other healthy kidney was enlarged on account of a compensatory hypertrophy. Neither will the cystoscopic examination of the ureteral papillæ give us decisive information regarding the side affected. The only certain method is ureteral catheterization, whereby the urine of each kidney can be collected separately and examined. Such an exam-

ination will not only show beyond doubt which side is diseased, but by means of a comparison of the urea, the freezing point and the glycosuria (after phloridzin injection) of the two urines will give us much information as to the ability of the healthy or less profoundly diseased kidney to fulfill the uropoetic function of both.

A New Test for Acet-acetic Acid in Diabetic Urine.—E. RIEGLER (*Zeitschr f. klin. Med.*, 1904, Vol. 54, No. 4).—The reagents required for this test are a 10 per cent. aqueous solution of hydriodic acid and chloroform. To 15 c. c. of the urine, 2 c. c. of the hydriodic acid solution and 3 c. c. of chloroform are added, and the whole well shaken. In normal urine the chloroform takes on a violet color, whereas if di-acetic acid be present, the chloroform remains colorless. The explanation of this reaction is probably as follows: The urates present in all urine reduce the hydriodic acid, setting free iodine. Ordinarily this will give its color to the chloroform. Di-acetic acid, however, if present, absorbs the free iodine, and so prevents the coloration of the chloroform. The test is said to be delicate and reliable.

Dorsal Auscultation of the Heart.—LIBENSKY (*Wien. klin. Rundsch.*, 1904, Nos. 50–52; *Deutsch. med. Wochenschr.*, 1905, No. 3).—In valvular disease of the heart much information regarding the pathological conditions can be obtained by auscultation over the back. In mitral disease the murmurs are loudest at the lower angle of the left scapula. The sounds heard here are loud in proportion to the degree of dilatation of the right ventricle, as a result of which the heart is crowded backward. In aortic lesions the loudest murmurs audible on dorsal auscultation will be heard in the left supra-spinous fossa.

The Justus Reaction in Syphilis.—POLLIO and FONTANA (*Gazz. d. Ospedali*, 1905, No. 1).—A diagnostic test for the presence of syphilis, first recommended by Justus, is supposed to consist in a marked diminution of the per cent. of hemoglobin in the blood after a week's energetic mercurial therapy. As a result of forty carefully observed cases, the writers declare the test unreliable and of no value.

A New Test for Blood.—SCHILLING (*Therap. Monatsh.*, 1904, No. 12). According to the writer, traces of blood in a fluid can be recognized by the addition of a few drops of a 20 per cent. solution of hydrogen peroxide. The blood promptly decomposes the reagent, and shows its presence by means of the production of numerous small bubbles of oxygen, while the solution is decolorized. The test is said to be positive if blood is present in the proportion of 1 to 1600. While there are more delicate tests for blood, this one certainly has the merit of simplicity and convenience.

The Diagnosis of Retraction of the Apex of the Lung.—SORGO (*Wien. klin. Wochenschr.*, 1904, No. 50).—In incipient pulmonary phthisis the apex of the lung often becomes adherent to the subclavian artery. As the lung tissue retracts, it pulls upon the artery, producing a kink and thereby a difference in the two radial pulses. Often a change in the po-

sition of the arm releases the kink, and so makes the radial pulses alike again. This phenomenon is a trustworthy sign of tuberculous apical retraction.

A Test for Hyperacidity of the Stomach Contents.—CIPOLLINA (*Riform. med.*, 1904, No. 49; *Deutsch. med. Wochenschr.*, 1905, No. 1).—A mixture of anilin-water with calcium or sodium hypochlorite (chlorinated lime or Labarraque's solution) has a violet color, which is modified by the addition of a solution of hydrochloric acid of a strength greater than one-fourth per 1000. Concentrations of one-fourth to two per 1000 produce a violet-red color that soon turns yellow, whereas concentrations greater than two per 1000 produce an amethyst-blue color. The presence of lactic acid does not influence the reaction. This would seem to be a convenient rough and ready test for the degree of gastric acidity.

A New Method of Obtaining Gastric Contents.—CARNOT (*Deutsch. med. Wochenschr.*, 1905, No. 2).—At a recent meeting (November, 1904,) of the Societe de Biologie of Paris, Carnot suggested a new clinical method for gastric analysis. Instead of obtaining the stomach contents after a test meal, Carnot produces a reflex gastric secretion by having the patient chew but not swallow food. This secretion can then be obtained by means of the stomach tube, and has the advantage of being entirely free from food remnants. Analysis of secretion obtained by this method show that each inividual has his own peculiarities as regards not only the amount of acid and pepsin secreted, but also as regards even the occurrence or absence of this reflex secretion. This, together with the fact that as yet we have no information as to whether this reflex secretion is identical with the ordinary secretion after the ingestion of food, renders the method of little clinical value until further research has cleared up these dubious points.

THERAPEUTICS.

IN CHARGE OF

WALTER BAUMGARTEN, M. D.

The Treatment of Capillary Bronchitis With Wet Mustard Packs.—HEUBNER (*Therap. d. Gegenwart*, 1905, p. 1), describes his method of combating the serious suffocative stage of capillary bronchitis in children. It is essentially counter-irritation by mustard. Half a kilo of fresh mustard flour is thoroughly stirred into one and a half litre of warm water until the fumes arising from the mixture become irritating to the eyes. This requires about ten minutes. A sheet sufficiently large to envelope the child is then saturated in this mixture, wrung out and spread on a blanket. On this the child is placed naked, then closely covered by the sheet from the feet to the neck, the blanket being brought over all, so that a moist mustard pack is the result. In this the child

should remain from ten to fifteen minutes, until it shows by its restlessness that the irritation of the skin is becoming pronounced. It is then quickly removed from the pack, washed in plain warm water to remove all trace of mustard, and then placed in a warm pack made by wringing a sheet out of plain water and covered by a blanket. In this pack the child should be left for one or two hours, the length of time being controlled by the temperature of the child, which is likely to increase. When this occurs, or when a very profuse perspiration appears, the child should be removed; again bathed in plain warm water, then dried, clothed in an ordinary gown, and returned to bed, where it should be left undisturbed. The procedure should not be repeated within twenty-four hours, but in severe or prolonged cases may be employed daily for three or four days. Though more tedious, it is applicable under a greater variety of circumstances than the hot mustard bath, and as it is better borne, allows time for a more pronounced effect.

Treatment of Hæmoptysis.—Hochhang (*Deutsch. med. Wchschr.*, 1905, p. 169), presents the following outline: In the smaller hæmorrhages of early pulmonary tuberculosis, the patient is to be put to bed, forbidden to speak, and given nourishment and liquids in the form of cold drinks—in the first few hours preferably only cracked ice. An ice-bag should be placed on the side of the chest on which the lesion is suspected, or, if this cannot be located, on the heart; the author is emphatic in his belief that the reflex effect of cold so applied is of distinct value. Internal styptics he also believes to be of positive value; among these, common salt given in dessertspoonful doses in the least possible quantity of water, ext. hydrastis canaden. ten to twenty drops, or lead acetate in half-grain doses—these given every two hours—also, ol. terebinthinæ gr. v. in capsules four or five times in twenty-four hours. Opium or morphine should be used less frequently than is the case; the indication for its use is a frequent explosive, irritative cough which promotes bleeding; a moderate cough which serves only to expel the blood in the bronchi should not be interfered with. The patient should be kept in bed for several days after the hæmorrhage has ceased, and then treatment of the essential condition taken up.

In the more serious hæmorrhages of the later stages of tuberculosis the same preliminary measures of rest, etc., should be taken, and in addition, certain chemical and physical measures. Most efficient of the chemical means is the subcutaneous infusion of gelatin which the author employs in ten per cent. solution as supplied in aseptic vials by Merck, using 40 c. c. at a dose. Other measures consist in the hypodermic use of ergotine and adrenalin(?) Of the mechanical measures, two are of special value: (1) The application of a tourniquet to one thigh with sufficient pressure to obstruct the return of venous blood, but not sufficient to interfere with the arterial flow; and, (2) the stopping of the affected side of the chest, thereby putting it at rest. As a last resort in cases in which the hæmorrhage may, with reasonable certainty, be locating in a superficial cavity, the overlying portion of the ribs in contact with the cavity may be removed in the hope that the cavity will collapse and allow the arteries involved to retract.

PATHOLOGY AND BACTERIOLOGY.

IN CHARGE OF

CARL FISCH, M. D.

Rapid Method of Imbedding in Paraffin by Means of Acetone.—F. HENKE and E. ZELLER (*Centralbl. f. Pathol. Anat. u. Allg. Pathol.*, Vol. xvi, No. 1).—Fresh pieces of tissue are fixed and hardened in acetone (pure), which, for fragments up to 1 cc. takes half to one hour. From this they are directly transferred to paraffin of the melting point 52°C. The material prepared in this way allows of applying all of the ordinary staining methods, including those for elastic fibres and tubercle bacilli. The method recommends itself highly on account of its simplicity, because no changing of fluids is necessary, as in that similarly rapid method devised by Lubarsch. Altogether, the use of acetone for histologic purposes is too restricted, the more unjustly, as we have in this country, through the work of Fish, learned a great deal of its many advantages.

About the Relation of the Nervous System to Regeneration in Amphibia.—RICHARD RUBIN (*Bostock*, 1904).—The dependence of the differentiation of tissues, among others the muscles, upon the nervous system, has so far only been studied on the basis of teratologic phenomena. Rubin's paper, that was directed by Barfurth, has, therefore, a great pathological and teratological interest. He has shown by his experiments that the influence of the nervous system on the development of musculature and on its regeneration in earlier stages of development, differs from that in the regeneration of an adult animal. Even in the latter, regeneration at first occurs without the coaction of the nervous system; only later the latter is observed. The general results of the author are as follows: If the spinal chord in the tail of a larva of an axolotl is destroyed in one place, and if, peripherally from this place, the tip of the tail is removed, a regeneration of this tip takes place in spite of the interruption of the continuity of the spinal chord.

The removal of the whole brain and the sense organs does not prevent, in young larvæ, the regeneration of the tail when it has been cut off.

The elimination of the nervous system in siredon pisciformis does not interfere with the prompt appearance of the first stages of regeneration. Only later the absence of innervation expresses itself by an increasing slowness and finally stopping of the regeneration.

Histologic Studies About the Edema of the Skin and the Subcutaneous Tissue.—KARL ZIEGLER (*Beitr. z. Pathol. Pathol. u. Allg. Path.*, Vol. 36, Heft 3).—Ziegler studies the histologic changes of the tissues in different forms of edema, paying especial attention to the appearance and fate of free cells. The investigations extended to twenty-one cases of very varying ages and history. It was found that the infiltration of the tissue by fluid always commences in the subcutaneous tissue, causing its distension. Only secondarily an infiltration of the papillary corium

portions occurs. Of forms of free cells occurring in edema, the author differentiates three: red corpuscles, leucocytes, and lymphocytes. Most important is what he says about the lymphocytes, discussing their relation to other cells designated usually by other terms. Those lymphocytes, derived from the blood vessels, undergo very curious and characteristic changes. They are called polymorphous lymphocytes. They are identical with the polyblasts of Maximow, the leucocytoid cells of Marchand, the granular cells of Marschalko. The plasma cells of Unna and Pappenheim also belong to this category. In normal tissue klasmatocytes and mast cells are usually classed as different forms of cells. In the presence of edema it can be seen that lymphocytes become klasmatocytes. Mast cells are polymorphous lymphocytes, showing metachromatic granula. Mast cells and klasmatocytes differ from connective tissue cells by the smaller, more chromatin containing nucleus, and the granular cystoplasm that never connects by processes with homologous cells.

Assimilation and Heredity—An Energetic Theory of Heredity.—Fr. Hamberger (*Wien. klin. Woch.*, 1905; No. 1).—Experiment has shown that cells and tissues performing the same functions in different species of animals must differ from each other, although morphologically and chemically they appear identical. It is assumed that this difference is due to a different character of the biochemic structure of the proteids in each of them; we must believe that each species has a specific structure of the latter. In applying this conception to the problem of heredity, the preservation of the species will appear as an energy or force that remodels proteids taken up as food to a structure identical to the structure of the proteids of the species. This is what is called assimilation. Cells that vary in function, but are alike in their specific character, must have something in common in the biochemic structure of their proteids. If multicellular organisms propagate, this specific character of the proteids is retained. Extended to the conception of races, a common racial specificity of this structure is present. And, finally, each cell of an organism must be possessed of a specific individual structure. The general heredity is to be explained by a lasting and always constant energy of the proteids.

The Hydrophobia Question.—Reynold Webb Wilcox (*The Southern Clinic*, 1905; No. 2).—Attention is called to this paper to show how widely different well established facts are interpreted in medical literature to suit certain personal idiosyncrasies. By a great array of observations and literature, Wilcox tries again to demonstrate that a pathologic entity, called hydrophobia, does not exist, but is only the effluence of ignorance and superstitious belief. It is, of course, unnecessary to try to convince the author of his error, but papers like these serve to cause a false feeling of security, and may ultimately lead to dire consequences. This is the more to be emphasized for this paper, as it is written with a security of assertion and judgment about the results of scientific investigation so far obtained that may lead an uninformed reader to believe the author.

A Tumor of the Pleura, Derived from Aberrant Lung Tissue.—Niels Muus (*Virch. Archiv*, Vol. 176, Heft 1).—Muus found in a cyanotic newborn a polypous, smooth tumor of the size of a walnut, that was situated at the surface of the left side of the diaphragm, close to the hiatus cardiacus, covered by pleura. The pedicle of this tumor, which resembled a lobe of the lung, penetrated the diaphragm and received an artery from the left suprarenal. There was found, besides, a strand of tissue, four cm. thick, adhering to the stomach. Through this strand a fine canal made its way, which, however, did not communicate with the stomach. In this canal small complexes of cartilage ciliated epithelium, and in the septa between them, cross-striped muscle fibres appeared. The lungs and bronchi of the infant were normal. The tumor must be explained as a misplaced lung.

Annual Report of the Surgeon General of the Public Health and Marine Hospital Service of the United States for the Fiscal Year 1904.—(Washington. Government Printing Office).—This report fills the mind of the reader with high appreciation for the immense, careful work done during the last year under the guidance of the Marine Hospital service. It is a drastic demonstratiou of the feeling of duty with which its responsible task is dealt with. A review of the contents is impossible, but it must be mentioned that the volume contains, besides the official reports and records, scientific contributions of lasting value. This pertains as well to discussions about questions on infectious diseases (especially yellow fever) as well as to the original papers. In regard to hygienic and sanitary procedures the report is a rich fountain of information.

GYNECOLOGY AND OBSTETRICS.

IN CHARGE OF

Hugo Ehrenfest, M. D.

The Use of Gersuny's Paraffin Injections in Gynecological Work.—Stolz (*Monatsch. f. Geb. u. Gyn.*, xx, 6).—Subcutaneous injections of soft paraffin have been employed in cases of incontinentia urinæ and of prolapsus uteri and vaginæ. In case of complete defect of the urethra the injections are made under the prolapsed mucosa of the bladder. If the urethra is intact, one larger injection near the neck of the bladder usually proves sufficient. But there is always the danger of embolism following the injection, and, therefore operative methods must be given preference and the injections reserved for cases in which an operation for certain reasons becomes impossible. The same is true for large injections under the vaginal mucosa, as successfully employed in a few cases of extensive prolapse of the vagina or uterus. Here, first, the pessary and then operative interference must be considered before Gersuny's method is resorted to.

The Effect of Roentgen Rays Upon Ovaries.—HALBERSTAEDTER (*Berl. klin. Woch.*, 1905. No. 3)—The writer observed that if one side of the abdomen of rabbits was exposed to the x-rays the ovary of this side became markedly smaller. In order to ascertain exactly the character of the influence of the rays he first laparotomized rabbits, examined their ovaries and then exposed the animals to the Roentgen rays. In this way he could ascertain the fact that under the influence of the rays the Graafian follicles completely disappear. This observation is, for obvious reasons, of eminent practical importance, and it will be the duty of every physician using the x-rays on women to guard against such a decidedly undesirable effect.

The Transmission of Antitoxins from Mother to Fetus—A Contribution to the Physiology of the Placenta.—OSCAR POLANO (*Zeitsch. f. Geb. und Gyn.*, Band 53, Heft 3).—The question whether antitoxins formed in the maternal system during pregnancy can be transmitted to the fetus *in utero* is one of considerable practical importance. If this question could be answered in the affirmative we could attempt to immunize the unborn infant. Some time ago Behring and some of his co-workers positively denied the possibility of a transition of antitoxins, basing their claim upon experiments on animals and theoretical reflections. The experiments of Polano on pregnant women lead to a different result. By injecting tetanus and diphtheria antitoxins into pregnant women he could demonstrate that the transgression of antitoxins is a normal and typical occurrence. Polano's investigations were carried out in a most careful way. Especially when experimenting with the diphtheria antitoxin he first ascertained the fact that the patient's blood did not contain this antitoxin, a very common occurrence. In all instances a portion of the injected antitoxins could be detected in the blood of the new born infant, so that Polano seems justified in concluding that such a transition is not limited to cases in which the integrity of the placenta is disturbed, as was claimed by Behring, but, as stated above, is typical.

The "Dangers" of the Schultze Method in Resuscitation of Asphyxiated Infants.—B. S. SCHULTZE (*Muenchn. med. Woch.*, 1905, No. 6).—The nestor of the German obstetricians and inventor of the well-known method of resuscitation defends in this short article his method. First antagonized by the majority of practitioners, his mode of artificial respiration, which was first advocated by him in the sixties of the past century, gradually began to gain in favor, and is at present a procedure a description of which probably can be found in every textbook of obstetrics of every nation of the civilized world. The acceptance of this method has become so general that it is used too extensively, and this fact accounts, according to the idea of Schultze, for the increasing frequency in recent literature of reports of unfavorable results. In the early history of the method records of broken ribs and clavicles and ruptured spleens were rather common; they began to disappear when the physicians learned how to swing the newborn infants. Other injuries to the babies, for which Schultze's method was blamed, were found to be injuries sustained in the course of labor. Of late Hengge (*Muenchn.*

med. Woch., 1904, No. 48,) pointed out the disadvantages and dangers of the method by giving the post-mortem findings of three children who had been swung. They showed ecchymoses in pleura, endocard and pericard, hemorrhages on the surface and in the parenchyma of the liver, etc. Hengge sees in them the effect of the attempts of resuscitation after Schultze. Schultze, in defense, however, reminds Hengge that long before he ever thought of his method these ecchymoses and hemorrhages were recognized by pathologists as the typical lesions of asphyxiation. Schultze calls once more attention to the fact, which apparently has been forgotten, that he himself considers the method only indicated for such extreme cases in which the child is pale and his muscles completely relaxed, a weak beat of the heart being practically the only symptom of life.

The Dangers of the Schultze Method.—BURCKHARD (*Muenchn. med. Woch.*, 1905, No. 6).—This is another paper which antagonizes an article of Hengge in which he warns against the use of the Schultze method. Hengge found in his cases and in others recorded in the literature hemorrhages in the spinal cord. From systematic examinations of newborn infants who died from asphyxiation, either during labor or shortly afterward, Burckhardt concludes that such hemorrhages are rather common. They possibly are dependent upon certain manipulations, as extractions or versions, and may at times be caused by the Schultze method, but not necessarily so. The pathological dignity of these hemorrhages is obviously dependent upon their extent, and in some instances may account for paralytic conditions. The advantages of the Schultze method are, however, so manifold and many that the occasional unfavorable result does not justify the advice to discontinue the method.

PEDIATRICS.

IN CHARGE OF

ALFRED FRIEDLANDER, M. D.

Some Conditions Which May Be Mistaken for Meningitis.—BAUMANN (*Brit. Jour. Chil. Dis.*, February, 1905), in discussing the diagnosis of meningitis, calls attention to the fact that it is not the occurrence of the disease itself which produces diagnostic difficulties, but rather that a number of other diseases tend to assume a type simulating meningitis. The nervous system of the child is curiously unstable. Comparatively trivial ailments may mimic meningitis with an astounding degree of fidelity. The diagnosis of the three most common forms of meningitis in childhood, tubercular, posterior basic and suppurative, are then summarized. The author then reports a series of carefully studied hospital cases, all of which adopted meningitic types, and so for a time at least caused diagnostic difficulties. The list includes cases of typhoid, lobar pneumonia, broncho-pneumonia, influenza, mastoid disease, middle-ear

disease, sarcoma of the brain, renal disease, gastro-intestinal disease and pseudo-meningitis.

It is probable that in many cases belonging to this category, the cerebral symptoms are caused by some toxic irritant produced in the course of the disease. It is therefore necessary in every suspicious case to consider carefully the history and symptomatology and to avail ourselves of all possible means of physical investigation. The history is frequently misleading. A history of influenza in the family, or of phthisis in the parents is often of importance. While a history of somnolence is, in and of itself not always important, the presence of headache accompanying and persisting during somnolence, is a suspicious symptom.

The author considers Kernig's sign of little diagnostic import. It is certainly present in a large proportion of cases of true meningitis, but it may also occur in a number of widely different morbid conditions, such as pneumonia, uremia, enteric disorder, etc. On the other hand, it is often absent in true meningitis. Tache cerebral is of still less value. Head retraction is of importance only when it is very pronounced, because in a lesser degree it may be the result of a number of trivial conditions. The pulse rate is worthy of careful observation. Slowness of the pulse with high temperature strongly suggests a cerebral lesion, though it does not serve to differentiate a meningitis from other cerebral lesions. Routine examination of urine often yields information of value. The examination of the optic fundus should never be omitted, though here again a negative result is often of little diagnostic value. On the other hand, optic neuritis and distension of the veins or blurring of the discs may occur in other conditions besides tubercular and suppurative meningitis.

Squint and nystagmus serve merely as confirmatory signs. Inequality of the pupils is not infrequently met with in healthy children. Examination of the ears should be made in all doubtful cases. Quinke's lumbar puncture should be undertaken as a matter of routine. Film preparations should be made from the fluid obtained and studied for micro-organisms, also for the variety of cells found. Normally the fluid contains few cells. In tubercular meningitis the mononuclear forms predominate, in suppurative lesions the polymorphonuclear.

The blood count may give information of value, as a count of over 25,000 or 30,000 is strongly suggestive of a suppurative process, especially if the polymorphonuclears predominate.

There is thus no single symptom or sign which will enable us to differentiate a meningitis from another disease with cerebral symptoms. The correlation of history, symptomatology and physical signs will, however, often permit the drawing of a correct conclusion. Meningitis should be assumed only when the symptoms are not only present, but persistent.

Treatment of Pertussis with Pyrenol.—GOLDMANN (*Centralblatt fuer Kinderheilk.*, February, 1905), reports excellent results from the use of this remedy in whooping cough. Pyrenol is a chemical combination of thymol, benzoic acid and salicylic acid. It thus combines various properties, acting as a paraciticide, an antipyretic, an antispasmodic and as

a stimulant expectorant. Its use has never been followed by any bad effects. Many cases have apparently been aborted by its use, while the duration of severe attacks has doubtless been shortened. The paroxysms themselves are not nearly as severe as those ordinarily seen, in cases treated in this way.

The author recommends that teaspoonful doses of a ½ per cent. solution (according to age) be given three times a day. Syr. rubi idaei or syr. cort. aurant, will make the drug perfectly palatable.

The method of treatment has been tried both by the author and by a good many other observers, with uniformly good results.

Concerning Natural Immunity of the Child During the First Year of Life.—Schuetz (*Jahrbuch fuer Kinderheilk.*, January, 1905), has made a series of experiments to determine how much the gastro-intestinal tract of infants is protected against bacteria and toxins. He endeavored to ascertain what the toxin-inhibiting or toxin-destroying power of the gastric juice of the newly-born is. For the purposes of his investigations he used diphtheria toxin. This was mixed in certain definite proportions with the gastric juice (removed by the stomach tube) of breast and artificially fed infants. Guinea pigs were used as the test animals, the minimal lethal dose of the toxin used having been determined by a careful series of control experiments. For the details as to the technique, and the results of the extensive series of experiments, the original communication must be consulted. The conclusions reached by the author as the results of his study are as follows:

1. The power of the gastric juice to neutralize diphtheria toxin varies greatly in different infants, and appears to be independent of the age of the child, the form of its nourishment or the condition of its nutrition.
2. Human milk does not appear to possess any notable antitoxin power against diphtheria toxin.
3. Boiling destroys the antitoxic power of the gastric juice.
4. A high grade of acidity of the gastric juice may perhaps reduce the toxicity of diphtheria toxin.
5. Aside from congenital immunity, the natural immunity of the child appears to be largely a matter of proper development, and quite independent of its manner of nourishment.

Primary Diphtheria of the Pharyngeal Tonsil.—In the ordinary course of diphtheritic angina it often happens that the membrane spreads up to the vault of the pharynx, covering the tonsil there. Such secondary extension is usually not a matter of particular significance, except as it signalizes the progression of the disease. According to Rocaz, however (*Arch. Med. des Enf.*, February, 1905), it sometimes happens that the process is primarily located on the pharyngeal tonsil, so that we have what this author calls a "diphtheritic adenoiditis." The symptomatology of this condition may be summarized as the association of the ordinary signs of adenoid vegetations with the symptoms of a diphtheritic intoxication.

A child with the ordinary signs of adenoids suddenly finds difficulty in breathing, nasal breathing being all but impossible. There are all the characteristics of an ordinary coryza. With this there is fever, con-

stitutional disturbance, swelling of the glands of the neck, and often albuminuria.

The diagnosis, which may be suspected if the conditions noted above be present, can only be made definitely by a bacteriological examination so long as the membrane is limited to the area of the pharyngeal tonsil.

Rocaz considers the prognosis of this form of diphtheria grave because of the difficulty of diagnosis, so that serum therapy is often used too late; also because of the fact that absorption of diphtheritic toxins from the pharyngeal tonsil occurs particularly readily.

Rocaz, furthermore, believes that this form of diphtheria is much more common than is ordinarily supposed, having seen ten cases himself.

The treatment is, of course, that of diphtheria in general. Prophylaxis would, of course, consist in removal of the adenoids, and the author sees in the existence of this condition another reason for the routine removal of adenoid vegetations.

Treatment of Pneumonia in Infants and Children.—NORTHRUP (*Med. Record*, February 18th) insists upon the value of fresh air in the treatment of this disease. He reports two cases treated in mid-winter, where he had the window-sashes removed so as to be sure that plenty of fresh air could be secured. Both cases recovered. He reiterates his conclusions, previously published, with regard to the treatment of this disease. These he summarized as follows:

How to Cure a Baby with Pneumonia.—1. Castor oil, the first aid of the injured.

2. Fresh air, cool and flowing. The temperature of the room to be regulated inversely to that of the child.

3. Water, plenty, inside and out.

4. Quiet and rest. Tranquilizing influences about the patient.

5. Correct the feedings to prevent fermentation and the formation of gas in the abdomen. Hot salines if necessary.

6. Antipyretic: water, no coal-tar products.

7. Heart stimulants: fresh air, hot foot-baths, relieving tympanites and crowding. Drugs: whisky and strychnia.

How to Kill a Baby with Pneumonia.—Crib in far corner of the room, with canopy over it. Steam kettle; gas stove (leaky tubing); room at 80° F. Many gas-jets burning. Friends in the room, also the pug dog. Chest tightly enveloped in a waistcoat poultice. If a child's temperature is 105°, make a poultice thick, hot and tight. Blanket the windows, shut the doors. If these do not do it, give coal-tar antipyretics, and wait.

ORTHOPEDICS.

IN CHARGE OF

NATHANIEL ALLISON, M. D.

A Slipping Cartilage in the Knee-Joint.—EDMUND OWEN, F. R. C. S., (*London Practitioner*, February, 1905).—In a recent examination paper for the degrees M. B., B. S., at the University of London, the following question was set in surgery: "Describe the Symptoms and Treatment of Injury to the Semilunar Fibro-Cartilages of the Knee?" The light-hearted, even casual manner, in which the operative methods of treatment were approached by many of the candidates prompted the author to write this paper. The "Margin of Error" in the knee-joint is in many ways similar to that of the abdominal cavity; that is to say, that if any micro-organisms find their way into the joint cavity the synovial membrane has very little power of dealing with them. We have very few reports of cases operated upon for internal derangement of the knee-joint that have "gone wrong." Perhaps this has led to the false impression that operations on the knee-joint are somewhat similar to hammer toe operations or to osteotomy at the lower end of the femur for knock-knee. There is no surgical procedure that is not attended with risk, but the opening of a knee is a matter of the first magnitude. The writer believes that palliative methods should always be used first in these cases of slipping cartilage, then if an operation must be done the patient should thoroughly understand the danger, and the greatest care should be exercised to prevent infection. He calls attention to the fact that it is almost invariably the inner or fixed cartilage that gets adrift, whereas the outer one being able to follow the bones is able to escape, be the movement ever so violent. The removal of a displaced cartilage is an operation that gives the most gratifying results. The writer reports several cases, athletes, soldiers, dancers, etc., who needed perfectly functioning knees, where he removed the cartilage with perfect results.

Rheumatoid Arthritis; Some Observations on Its Treatment.—JOHN ORR, M. D., F. R. C. P. E., (*London Practitioner*, February, 1905).—The treatment of the late Dr. G. W. Balfour, at Chalmers Hospital, Edinburgh, was so successful that the author of this contribution has seen fit to follow it for the last ten years with great success; this treatment is considered under three heads:

I. *Dietetic.*—The object aimed at here is to give the patient a diet that is easily digested and assimilated; all red meats are abolished, food fried in fats is not permitted, potatoes, turnips, head of cauliflower, peas and beans are not allowed on account of the sugar they contain. Tea with milk in small quantity, saxin used instead of sugar, eggs lightly boiled, scrambled or poached, milk puddings prepared without sugar, clear soups, maccaroni and milk soup are permissible.

II. *Internal Medication.*—Arsenic and iron given in small doses for three weeks out of each month and cod liver oil where it is well borne.

III. *Counter-Irritation.*—This is done by blistering, using the "em-

plastrum canthos," applying them to the swollen painful joints; painting with iodine is also good.

This plan of treatment should be carried out for two or three years, and when it can be supplemented by spa treatment, baths, electricity, etc., so much the better. The author gives the histories of four cases that were made better, and finally entirely relieved by these measures.

Dislocation of the Semilunar Cartilage of the Knee.—SCHLATTER (*Zurich. Beitr. z. klin. Chir.*, vol. xli, No. 2).—Schlatter adds five cases to the literature on this subject. He found a uniform history of rupture of some kind followed by sudden pain, resistance developing in the cleft of the joint and swelling of the capsule. The cartilage protruded more frequently during flexion while it disappeared in extension. The results of operative treatment were always good, rare cases showed some trivial disturbance of function during the course of years consisting of slight atrophy and limitation of extension. It is important that of sixty-two cases forty-five were internal meniscus dislocations.

The Ultimate Results of My Bloodless Reposition of Congenital Dislocation of the Hip.—A. HOFFA, Berlin (*Amer. Jour. Ortho. Surg.*, January, 1905).—Prof. Hoffa has treated more than 400 hundred cases of congenital dislocation of the hip by the bloodless method, 315 of these cases have been discharged from treatment for more than a year, these he has gone over carefully in order to make this report. Of these 315 cases 250 were unilateral and 65 were bilateral dislocations. Of the 250 unilateral cases 75 were real anatomic restorations with return of normal function. One hundred and sixty cases changed to anterior transpositions, 110 showing essential improvement over their former condition, 40 were unsatisfactory as far as functional results, 15 cases of the entire number relapsed. Here we have 75 per cent. success and 25 per cent. failure. The bilateral cases were not so satisfactory, 65 cases in all were subjected to manipulative reduction. Of these 65 cases only 5 showed absolutely faultless repositions, 32 were anterior transpositions with marked functional improvement, 10 cases relapsed on one side and were not benefited, 18 cases relapsed on both sides. Here we have 55 per cent. success and 45 per cent. failures. Hoffa states that on the whole he considers the treatment as very satisfactory and is grateful to Paci and Lorenz for their contribution to useful knowledge. He places the age limits in unilateral cases at from eight to ten years, and from six to 8 years in bilateral cases. He says that the degree of inward displacement, and the muscle shortening and joint rigidity, are more important in determining whether an operation will be successful or not than is the age of the patient. The importance of gymnastics, massage to the muscles and avoidance of forcible abduction during the period of after-treatment is great. Many cases can be reduced by several attempts when one attempt carried through would be too violent. Early diagnosis is the part of this field on which especial stress should be placed. In early years the cases are easily cured in the great majority of instances. Students should be impressed with the importance of making a diagnosis in these cases. The older cases should be satisfied with some of the palliative operations.

A Simple and Rapid Method of Recording the Lateral Deviation of the Spinous Processes in Scoliosis.—A. H. FREIBERG, M. D., Cincinnati, (*Amer. Jour. Ortho. Surg.*, January, 1905.)—This method consists in using a piece of plate glass, one quarter inch thick, twenty inches long by six inches wide; through the middle of the length of this a black line is drawn. Having marked out the line of the spinous processes with a skin pencil, the piece of glass is held against the patient's back in such a way that the black line cuts the vertebra prominens above and the fold of the nates below; the deviation of the line marking the spinous processes is now followed on the glass with a pencil that will write on glass. The glass is then placed on a piece of cross section paper marked with a central line to correspond to the line on the glass and the curve may be copied accurately to its full size.

The Treatment of Club-Foot—Are the More Extensive Cutting Operations Necessary?—B. E. MCKENZIE, M. D., Toronto (*Amer. Jour. Ortho. Surg.*, January, 1905).—The various osteotomies, enucleations and resections done on the tarsus for the relief of congenital club-foot, all tend to shorten the foot already pathologically short; they interfere, also, with the development of a foot already behind its fellow in development. It would seem, therefore, that the burden of proof rests on those advising these operations to establish the fact that they are necessary. These operations at times end fatally, and are not infrequently attended by extensive sloughing and loss of tissue. Dr. McKenzie reports a case where he did a Phelps' operation on one foot and repeatedly manipulated the other foot. After a number of years the contrast between the feet was strongly in favor of the manipulative treatment. He believes that the surgeon should not begin his treatment till early in the second year; that cutting, aside from tenotomy and fasciaotomy, is seldom or never required; that cases may be absolutely cured by manipulative measures and suitable retention apparatus; that the removal of bone is contraindicated and harmful; that in persons under fifty years of age congenital club-foot may be perfectly cured; that the time required for surgical treatment need not be more than three months. These conclusions are backed up by experience with 400 cases of congenital talipes equino-varus, ages varying between infancy and forty-six years of age. McKenzie has a special club-foot wrench which is very efficient; for apparatus he uses a night brace, and when the case is on its foot he employs only a shoe-raise on the outside to produce valgus.

NEUROLOGY.

IN CHARGE OF

SIDNEY I. SCHWAB, M D.

The Relation of Tertiary Syphilis to Tabes Dorsalis and Progressive Paralysis.—HUDOVERING and GUSZMAN (*Neurologisches Centralblatt*, February 1, 1905).—This is a very welcome addition to the literature on the

syphilis tabes question. It is certainly one of the most convincing of the recent papers on the subject. It directly meets the challenge of the opponents of the syphilis origin of tabes by agreeing to furnish tabetic statistics from a syphilitic material. It thus attempts to answer the question what proportion of late syphilitics develop tabes, and not what proportion of tabetics have syphilis? The difficulty of such an investigation can be easily seen. The material was selected from a large dermatological institute, and consisted only of those cases in which there were undoubted evidences of tertiary syphilis. These patients, with all the data in regard to the original infection and in respect to treatment were then sent to a psychiatric clinic for further observation and treatment, and likewise for careful examination of their nervous systems. In all there were studied fifty cases, twenty-four men and twenty-six women. The age variation was between twenty-four and sixty-four years. It is worthy of note that almost half of the women were unaware of their syphilitic infection. The neurological examination of this material shows the following: Normal nervous system, 44 per cent.; combined system disease, 21 per cent; suspicious cases, 8 per cent.; tabes dorsalis, 24 per cent.; progressive paralysis, 14 per cent.; tabo-paralysis, 8 per cent. These conclusions are noted. In this material of tertiary syphilitics, which had become syphilitic at least three years before, there was found only 44 per cent. of the cases with healthy nervous systems; tabo-paralysis, progressive paralysis and tabes dorsalis, 46 per cent; add to this the suspicious cases, the total will be 54 per cent.

The Misuse of Tendon Trasplantation.—H. OPPENHEIM (*Berl. klin. Woch.*, 1905, No. 7).—In a brief paper the author calls attention to the dangers of a too reckless application of the method now much in vogue of transplanting tendons for the relief of paralysis and contractures. To illustrate the danger, a case is described which was regarded as suitable for this procedure, when, as a matter of fact, the symptoms were due to a tumor of the eleventh lumbar vertebræ. Other cases of progressive muscular atrophy in the so-called neuritic form of this disease have been operated upon without the true condition being thought of until long after the operation had been done. Oppenheim declares that the surgeon or orthopedist who plans to do tendon transplantation or a muscle operation of a similar nature must feel it his duty to determine beforehand that the condition is not due to a progressive disease, and that it is due to a process that has run its course and has become stationary. This definitely proves this one fact, after all other causes are taken into consideration, namely: That there exists a close relation between syphilis and the diseases of the nervous system studied. This conclusion can be weakened only by showing a like proportion of these diseases in a material that is not syphilitic.

A Case of Amaurotic Family Idiocy.—MCKEE (*American Journal of Medical Science*, January, 1905).—The report of this case is followed by a consideration of the eye findings, the pathological examination of the nervous system and the histological changes found in the eye in the case described. This series of papers forms a very complete summary of what we know at present of this very interesting disease. Sachs, more

than any other English author, deserves the credit of recognizing the clinical picture of the disease, and he has summed up the principal symptoms of this curious affection as follows: 1. Mental impairment, appearing during the first months of life, and leading to absolute idiocy. 2. A paresis or paralysis of the greater part of the body; this paralysis may be either flaccid or spastic. 3. The reflexes may be normal, deficient or increased. 4. A diminution of vision, terminating in absolute blindness; changes in the region of the macula lutea and later optic nerve atrophy. 5. Marasmus and a fatal termination as a rule about the age of two years. 6. The occurrence of the disease in several members of the same family. The child described in this paper is one year old, and shows the first four conditions in the group of symptoms noted above. The child died as a result of a general catarrhal pneumonia, and the eye, brain and cord were saved for subsequent examination.

Ocular Manifestations in Amaurotic Family Idiocy.—BUCHANAN (*Am. Jour. Med. Science*, January, 1905).—In this case the following eye ground changes were found in addition to the other eye symptoms: The pupils were unequal, responding to the light. The media were clear, showing a scleral ring out and a very marked pigment ring beyond. The discs were atrophic and bluish white in color. The vessels were very much reduced in size, especially the arteries, which in the left eye were so small that it was difficult to trace them over the red eye ground. The retinal pigment was absent in many places. The macular region in each eye showed a pathognomic condition. The fovea showed as a dark red oval with sharply defined edges, the color corresponding to that of the veins. At its center a tiny yellow reflex was seen. Surrounding the fovea was a large, greenish white, oval patch, very dense at the fovea, and gradually fading away to the periphery. Several minute retinal vessels were traced over the white area. In both the fovea and in the surrounding oval the long axis was horozonat, the latter measuring about one and one-half discs in diameter.

Histological Examination of the Eyes in a Case of Amaurotic Family Idiocy.—SHUMWAY and BUCHANAN (*Am. Jour. Med. Science*, January, 1905).—The sections cut in paraffin pass directly through the fovea centralis and macula. The ganglion cells were found in an advanced stage of degeneration. The retina as a whole is thinner than normal, and the thinning seems to be at the expense of each of the layers. The examination here made confirms the view that the essential change in the eyes are a degeneration of the ganglion cells of the retina and of the nerve fibers of the optic nerves and tracts which are genetically a portion of the central nervous system.

A Pathological Study of Amaurotic Family Idiocy.—SPILLER (*Am. Jour. Med. Science*, January, 1905).—The cells throughout the whole nervous system showed the most intense alteration. The machi stain shows intense degeneration in the white matter in the brain and cord, especially in the former. No signs of inflammation were found anywhere. A piece of one plantar nerve shows considerable degeneration. Spiller, no more

than Sachs, accepts the view that the disease is an acquired or a toxic disease.

GENITO-URINARY SURGERY.

IN CHARGE OF

H. McC. JOHNSON, M. D.

A Report of Eighty-four Operations on the Kidney and Ureter.—BREWER (*Medical Record*, February, 1905).—These cases represent the writer's experience in a period of over ten years, and he here presents the results, enumerates the pathological conditions found and calls special attention to certain groups of cases which presented features of unusual interest or difficulties in diagnosis. The cases consist of carcinoma, tuberculosis, pyelonephritis, pylonephrosis and multiple septic infarcts from blood infection. In 41 per cent. of the cases giving a clinical history of calculus, and this in many instances confirmed by more accurate investigations, the diagnosis was wrong. In order to elicit the cause of these mistakes the author has carefully reviewed the history of thirty-six cases and investigated the symptoms with reference to pain. It is noteworthy that the point of greatest intensity of pain was not infrequently located somewhat below the kidney, and in several instances at or near McBurney's point on the right side, or on a corresponding point on the left. Vomiting was found to be a very constant accompaniment of severe colic. Frequent or painful micturition, occasionally associated with severe tenesmus, was present in twelve of the twenty-one cases of stone, it was absent in seven and unrecorded in two; in fact, it was found to be present in one-half of the cases of stone in the kidney. Fever appeared to be a symptom only if the ureter became occluded. Tenderness over the kidney or ureter was a constant symptom. Blood in the urine is usually present at some time, though it may be in microscopic quantity, yet it is often entirely absent at the time of a given examination. The presence of pus in the urine is dependent upon so many factors that it is of very little value in the diagnosis of renal or ureteral stone. It is to the employment of the cystoscope and the ureteral catheter that surgery owes much of the advance that has been made in diagnosis and in determining the competency of the kidney. The x-ray in competent hands is, in the writer's opinion, a most valuable method of examination for the diagnosis of calculus disease of the kidney or ureter. If we reject all plates which do not show the outline of the psoas muscles and the transverse processes of the lumbar vertebrae, and look with suspicion on all shadows which do not have well defined edges, it seems that error would be reduced to a minimum. The author was unable to report any recoveries after the operation of decapsulation for chronic nephritis, out of ten decapsulations on five patients. He closes with the report of six cases of traumatism, and says there may be extensive injury to the kidneys with but slight local or general symptoms, having been led to adopt the rule, therefore, that all cases of severe contusion of the flank with hematuria should be immediately explored.

Operations on the Lower Ends of the Ureters by the Inguinal Extraperitoneal Route Under Local Anesthesia (Cocaine).—SAMPSON (*Annals of Surgery*, February, 1905).—Four operations on three patients by this method are reported, the author using Schleich's infiltration. Although the operations lasted from four hours and thirty minutes to six hours and ten minutes, its only apparent effect aside from the postural discomfort, and at times some pain, was that of fatigue as from a similar length of time spent in a dentist's chair. Pinching, cutting and suturing the ureter in these cases apparently did not cause any pain, and similar treatment of the bladder in one case was painless, but painful in another. Closing the abdominal wound was the most painful step in all four operations. The author finds the extraperitoneal route a very satisfactory way of reaching the lower ends of the ureters. He recommends local anesthesia for those cases in which a general anesthetic would not be desirable.

Bladder Segregators.—In the December, 1904, issue of the *Ann. des Mal. des Org. Urin.*, a new vesical segregator is illustrated and described by Boddaert. The instrument in its distal end very much resembles the curve of the urinary sound. This is covered for several inches by a rubber cot. The principle involved consists in projecting this rubber partition downwards very much as in a Cathelin devisor, with the exception that the projected curve is much more firm than that in Cathelin's. The advantages of the instrument consist in its being graduated so that it may easily be applied to bladders of different sizes. It does not exert a large and brusque contact with the bladder as does Luys' segregator, and yet presents sufficient resistance so as not to be deformed, as often happens with the apparatus of Cathelin. It is easily introduced into men, a distinct advantage over that of Luys. Again, the exterior caliber of the devisor is only of a number 22 French. In the issue of the same journal, January 15, 1905, Luys takes up the challenge thrown down to him by Boddaert, and calls attention to the advantages of his own segregator, emphasizing certain disadvantages of those of Cathelin and Boddaert. In fact, he gives us a very able exposition of the subject of segregation, and attempts to answer in detail the objections of Boddaert. Boddaert claimed that the curve of the Luys' instrument, being uniform, rendered it inapplicable to bladders of small capacity. Luys replies that by his instrument a bladder of the capacity of thirty ounces has been successfully divided. The second criticism, that the contact of the Luys' separator upon the bladder is too large, seems unjustified to Luys, because it is just such contact that prevents the mixing of the two urines. In answer to the charge that the Luys' instrument is difficult of introduction with men, the author says that this does not hold, provided that the manœuvre which he recommends is executed. Luys says that in the Boddaert instrument the catheters which are to drain off the separate urines do not reach the bottom of the reservoirs made by the devisor, and as the fluid must collect until a certain height is reached, there is great danger of mixing of the two urines; whereas, in his own instrument the openings through which the separate urines are drained off always lie at the bottom of each reservoir, thus allowing no accumulation and no danger of mixing.

Conservative Perineal Prostatectomy—A Report of Fifty Cases.—YOUNG (*Jour. A. M. A.*, Feb. 4, 1905) speaks for the preservation of the urethra and the ejaculator ducts. Where the median lobe is pedunculated, sometimes it is necessary to use the index finger to make it present in the lateral opening and sometimes it may be impossible to deliver the median lobe through the lateral openings. In this case it may be enucleated from the urethral side. Preliminary treatment for very delicate patients is advocated. Preliminary cystoscopy is of great importance. Spinal cocainization has proved of very great value in those cases in which, on account of old age or renal disease, ether or chloroform would be dangerous. The principles of the after-treatment consists in keeping the kidneys very active by means of water by mouth, subcutaneous infusions or rectal normal salt solution injections, in getting the patient up as soon as possible, in early removal of the gauze and tube drains and in avoidance of instrumentation; fifty cases with two deaths are reported. No case has been seen in which there is more than thirty-five c. c. residual urine after the operation. For those cases which have frequency of urination after operation, Young observes that there is diminished bladder capacity, and has obtained good results from forcible hydraulic dilatations. In several cases after prostatectomy spermatozoa have been found in the ejaculative fluid, in two cases the spermatozoa being actively motile. From such answers as Young has obtained from some of his operative cases he thinks the prospect is very good for obtaining a high percentage in the preservation of the sexual *puissance* by the technique that he employs. In three cases perineal fistula still persists. Four cases of rectal fistulæ are reported, in two of which the author is sure no tear was made into the rectum at the time of operation. However, in the last twenty-five cases the separated levator muscles have been stitched together in front of the rectum to avoid this complication, and no fistulæ have occurred. In some cases after removal of the perineal tubes slight incontinence may persist for a while, but in only two has this persisted after an interval of seven months, and this only when the bladder is full of urine. In one case only is there a persistent slight incontinence, but by wearing a small pad beneath a jock-strap the patient avoids wetting his clothes. Epididymitis occurred in six cases.

The Diagnosis of Renal and Ureteral Calculi.—FOWLER (*Med. Rec.*, February 4, 1905).—It is of the greatest importance to take a full, complete and satisfactory history, for we are too prone to slide over this important detail and the patient never remembers to tell us all his symptoms, sometimes omitting points of greatest significance. It is rare that stones in the kidney may be palpated, but is not uncommon by rectal or vaginal touch to locate a calculus in the lower end of the ureter. Tenderness along the ureter upon deep palpation is a suggestive sign. In those cases in which the urine is not infected the examination of the urine between the attacks may be negative. When the urine contains a large amount of pus or blood, or both, we have to exclude tuberculosis by a search for the tubercle bacilli. Cystoscopic examination in cases of suspected calculi is well nigh indipensable. We may in this way detect the absence or presence of vesical involvement, note the difference in the two sides of the trigone, the presence of ureteral calculus at

its vesical orifice, and in cases of pyuria and hæmaturia we may observe which kidney, if the disease is unilateral, harbors the foreign body. The ureter catheter will help us not only in locating strictures of the ureter, due to stone, but by it we may determine the work which a kidney, the seat of calculus disease, is doing. The value of the x-ray examination depends largely upon the weight of the patient and the experience and skill of the examiner. After all, there are certain cases that will require an exploratory incision for diagnosis. It is by early surgical interference that we can save the kidney and give the patient the opportunity for a perfect cure.

DERMATOLOGY AND SYPHILIS.

IN CHARGE OF

MARTIN F. ENGMAN, M. D.

Treatment of Port Wine Nevus by Radium Bromide.—T. J. P. HARTIGAN (*Brit. Jour. Dermat.*, December, 1904).—The patient, a woman aged twenty-six, was born with a large port wine nevus covering the left cheek and left side of the nose. It was a reddish color with slight purplish tinge, and near the margin of the orbit there were a few dilated vessels. The disfigurement was very marked. Having a personal experience of the dermatitis following the application of radium on the healthy skin and noticing its effects on diseased skin, the author was of the opinion that by prolonged reaction there could be produced an obliteration of the vessels, thus removing what has hitherto been regarded as an irremediable deformity. The specimens of radium used weighed ten grams each, and were of the highest known radio-activity. Usually within twenty-four hours erythema and a slight prickling sensation and vesicles appear. These drying up leave a scab, which falls off in a week or ten days, leaving behind it a thin, white skin. In this way the patient was treated, the applications extending over nine months, during which time she had thirty-nine exposures in all, varying in duration from one-half to one hour. The improvement was marked. At the date of the article there was comparatively little to be seen; with the exception of a few small untreated areas, the deformity has entirely disappeared. The condition that formerly existed cannot now be traced, and the result, in the opinion of the gentlemen who saw the case, was that "it was considered distinctly encouraging."

Leprosy in Jamaica.—E. GRAHAM LITTLE, M. D. (*Brit Jour. Dermat.*, December, 1904).—In the leper home the treatment pursued is chiefly on hygienic and general principles. Subcutaneous injections of solution of soluble salts of mercury is favored. All cases are more or less improved by its use, especially the anesthetic type. Chalmoogra oil, both internally and by injection, is also used. The first process is very difficult to follow for any length of time, owing to the nausea and dyspepsia it causes. Injections promise better results.

Treatment of Nevus by X-Rays.—J. R. LEVACK (*Brit. Jour. Dermat.*, February, 1905).—The writer here describes three cases of nevus flammeus (port wine stain), in which treatment by the x-rays was adopted and gave successful results.

Case 1 was that of a girl aged eight years, with a large nevus occupying the left side of the face from the temple down to the upper lip. A patch one and a half inches in diameter was first treated, the rest of the face being protected. Daily sittings of ten minutes each were given. A 10-inch spark coil, worked from the accumulator, with a hammer-break interruptor and a soft tube, were used. After three weeks of this no reaction was obtained, so an electrolitic interrupter was substituted, and the current from the main employed so as to give 100 volts and 7 amperes. Daily sittings of three minutes set up a violent reaction in a fortnight, with edema and vesication, and the skin peeled off. The raw, bleeding surface healed very slowly, and when the patient returned three months later the part was completely healed and free from nevus. The rest of the nevus was treated subsequently in the same fashion in two seances, and the result was equally satisfactory. The writer advises that the whole of the nevus should be treated at once, instead of piecemeal.

Case 2 was that of a woman aged thirty-eight years, who had a nevus on the left half of the upper lip, which extended in isolated spots on the naso-labial fold and the lower eyelid. The main portion was treated as above, and reaction produced as above in about six weeks, the outlying islands being treated by the electro-cautery. The result was satisfactory.

Case 3 was that of a woman aged fifty-four years, with a nevus about one and a half inches in diameter, situated on the left malar prominence, dusky red in color, and raised above the level of the surrounding skin. There was another patch on the right ala nasi, and one on the back of the left wrist. This case was also successfully treated.

The Use of Adrenalin Chloride in Hemorrhages and Angio-Neurotic Diseases of the Skin.—GRANVILLE MCGOWAN, M. D., (*Jour. of Cutaneous Diseases*, February, 1905).—The writer has used this preparation quite extensively in genito-urinary conditions, and in hemorrhages of the skin, due to arteriosclerosis, the drug has proved successful. In other diseases of the skin he has tried the drug experimentally, and, it seemed to him, with great benefit in angio-neurotic conditions, and especially in chronic urticaria. He reports a number of very interesting cases, and recommends much larger doses than is usually prescribed.

Treatment of Syphilis on the Continent.—Major C. E. POLLOCK (*Brit. Jour. Dermatology*, January, 1905).—The author recently had the opportunity of visiting some of the leading dermatological clinics on the Continent (Europe) and of observing methods of treatment there employed.

Paris.—The great majority of out-patients were treated by means of pills, and almost everywhere the green iodide of mercury was the preparation employed. A few were treated by injections, but this method

did not seem to be popular. Patients in the hospital were treated mostly by injections, a great variety of preparations being used, but there seemed to be a distinct preference for the soluble salts.

Italy.—In civil practice injection is the method most commonly employed, while the military hospitals make use of inunctions. In injections the preparation most used was the sublimate at Rome and calomel at Milan. The general plan of treatment was to give distinct courses of mercury, separated by intervals at least twice as long as the period of treatment. The whole course lasted from three to five years.

Germany and Austria —The plan of treatment most generally followed was the chronic intermittent one. Some, however, belong to the systemic school, that is, they only ordered mercury when syphilis manifested itself. The most popular method of treating syphilis in Germany was by inunction with mercurial ointment, three to five grams of unguentum cinereum was rubbed in for forty to fifty days. Injection treatment is also largely employed. The insoluble salicylate sublimate and gray oil were the preparations most generally used. The internal treatment by pills and mixtures was not looked on with favor.

Brussels, Copenhagen.—In these cities the general plan of treatment was on much the same lines as in Germany.

Stockholm.—The most interesting treatment here was Welander's sack treatment. As soon as the diagnosis of syphilis was made he gave three or four injections of his mercurial oil to get the patient rapidly under the influence of mercury. The remainder of his course was carried out by the sack treatment. In adults it was applied as follows: A cotton bag was made sufficiently large to cover the whole front of the chest, the upper end being left open. Each morning this bag was turned inside out and ten grams of unguentum cinereum (containing about fifty-three grains of metalic mercury), was rubbed into the side of the bag which was to be worn next to the skin; the bag was then turned back again and the patient wore it for the following twenty-four hours. This treatment was carried out for forty to sixty days, and was repeated at subsequent intervals just as in the case of courses by inunction or injection. For infants suffering from congenital syphilis one gram was rubbed in daily. For pregnant women and infants suffering from syphilis this method seemed especially suitable. Cases under treatment by this method seemed to be progressing very satisfactorily.

St. Petersburg.—Patients in hospitals were largely treated by inunctions, out-patients receiving injections of the insoluble salicylate.

OPHTHALMOLOGY.

IN CHARGE OF

JOHN GREEN, JR., M. D.

The Extraction of Cataract; Choice of Operation Based Upon Intraocular Conditions.—S. D. RISLEY (*Am. Med.*, February 18, 1905.)—The author believes that no eye in which the lens becomes opaque, can, strictly speaking, be deemed free from disease. Close questioning of the patient will often disclose the fact that, during the stage of incipiency, signs indicative of asthenopia were present, these signs disappearing as near work becomes impossible with the increase in the opacity. In the earlier stages, when the eyeground is still visible, changes in the latter and alterations of the vitreous can often be determined. *A priori*, it would be expected that the avascular lens and vitreous would be the first ocular structures to suffer from sclerosis of the vascular tree arising out of the gouty or rheumatic diathesis, and such, in fact, is the case. If the condition of the choroid and vitreous of one eye with incipient lens changes suggests disease, extraction of the lens in the opposite eye should be deferred until appropriate internal treatment has improved the intraocular conditions.

Dr. Risley believes that simple extraction is positively contraindicated where the lens is of a dull grey or amber color, or partially translucent. Such a condition of the lens is usually associated with a lack-lustre iris, the pupil reacting sluggishly to light. Such cases should be operated by the combined method. After operation, atropin should be freely used, as these cases are especially prone to develop iritis.

For other cases, the writer has found extraction within the capsule or by the ordinary method equally satisfactory. Free irrigation of the anterior chamber is deemed the best method of removing masses of grey cortex.

Secondary capsulotomies are made with two spear-shaped knives introduced at opposite sides of the cornea. These are made to perforate the membrane at the same place, are then separated simultaneously, thus avoiding traction on the ciliary processes. If iritis should complicate the healing, Risley advocates full doses of salicylic acid internally.

Cure of Trachoma by Radium.—COHN (*La Clin. Ophtalm.*, January 10, 1905).—The granulations of trachoma and follicular conjunctivitis are brushed daily with a tube containing one milligram of bromide of radium. The seances last from ten to fifteen minutes. The effects are similar to the application of x-rays, viz., rapid disappearance of the granulations, painlessness, and recovery without complications.

Optic Neuritis During Lactation, Including a Reference to Other Ocular Conditions Observed at this Period.—G. S DERBY (*Arch. of Ophthalm.*, January, 1905).—Various ocular conditions have been ascribed to lactation by authors during the past century. The conditions include,

among others, conjunctivitis, blepharitis, mild keratitis, herpes, choroiditis, cataract, iritis, dacryoadenitis, nyctalopia, paralysis of the ocular muscles. Of more importance is the occasional occurrence of optic neuritis, coming on during the secretion of milk or after protracted nursing.

Derby's case occurred in a primipara twenty-five years of age with a healthy nursing baby of seven weeks. Two weeks prior to the first observation vision had begun to fail in the left eye, accompanied by frontal headache, most marked on the left side. Vision reduced to finger counting. Ophthalmoscopically, the disc was generally hyperemic, with blurred outlines. Visual field contracted, and the color vision in abeyance. Emmetropic refraction (under hematropin). One month later the vision in the right eye had failed to six-twelfths, but without ophthalmoscopic signs, whereas the vision in the left eye had returned to normal, with normal field and good color perception.

The author summarizes fourteen recent cases, reported in full, and includes a consideration, as a basis for his deductions, of ten others, in which the records are less complete. The average age is twenty-nine. The subjects are usually strong, healthy women, without history of previous ocular trouble. The first appearance of ocular symptoms may antedate the birth of the child or may be delayed until the child is a year old. Primiparæ or pluriparæ are attacked with equal frequency. The establishment of the milk secretion, not actual nursing, seems to be the important factor in the production of the disease. In two of the reported cases the onset of the disease was coincident with the suppression of the milk secretion.

The disease is usually bilateral, either a papillitis (which occasionally may be severe) or a retrobulbar neuritis, in which case there is no visible ophthalmoscopic sign. Vision is usually rapidly and greatly impaired, but in the end tends to regain its normal acuteness, notwithstanding the development of atrophic changes in the optic nerve head. The visual field is contracted, and in the retrobulbar types there is a central scotoma Succeeding pregnancies are apt to be attended by a recurrence. A conspicuous symptom is the frontal headache, which may be very severe. There is also localized pain in the orbit as well as pain on deep pressure. General symptoms, as chills, fever, vomiting, etc., have been observed in cases where suppression of milk occurs. Ocular paralysis and polyneuritis have been observed.

The most probable etiologic moment is an autointoxication from toxalbumins dependent for their formation on the secretion of milk.

Intermittent Exophthalmus, with Report of a Case.—W. C. Posey (*Jour A. M. A.*, February 13, 1905).—Posey's patient was a young man whose left eye was first noticed to protrude on stooping over at the age of four. The tendency to proptosis was notably increased after a fall on the head at the age of twelve. Of late years the patient could cause the eye to bulge forward by simply holding his breath.

When sitting quietly in a chair, the facial and ocular appearance of the patient is normal. Bowing the head forward, holding the breath, or if pressure is exerted on the jugular vein, the left eye pushes forward in the axis of the orbit. During the proptosis the upper lid droops and

the lower lid falls away, so that the tarso-orbital sulcus is obliterated. At the same time the superficial veins about the orbit become much distended. As soon as pressure is removed the globe rapidly recedes. Pressure on the globe seems to make the eye drop farther back in the orbit than is normally the case. During proptosis the retinal vessels become fuller, and visual acuity is slightly impaired.

When the patient holds his breath, the heart beats are slowed, and finally cease, this arrest lasting fifteen seconds. This is followed by a very rapid rate. The neck becomes much enlarged. At the same time the mucous membrane on the left side of the nose becomes abnormally hyperemic. By transillumination both antra are seen to be clear, but the light disappears from the upper half of the face during the time the patient holds his breath.

A careful search of the literature has revealed only thirty-nine similar cases. Usually the globe can be advanced from ten to fifteen mm. Occasionally a venous tumor, either behind or alongside of the globe can be seen and felt. Although no autopsy has been obtained in any case, it is probable that the condition is primarily caused by orbital varicosities. Secondary contributing factors are the absorption of the orbital fat and looseness of the fascia. The disease is more frequent in males, and is either congenital or is first manifested in childhood when great physical force is exerted. The prognosis is good. In the present state of our ignorance regarding the pathology of the affection, no operative treatment should be considered. Care to avoid strain, rest in the recumbent posture and a pressure bandage are advised.

SOCIETY PROCEEDINGS.

ST. LOUIS SURGICAL SOCIETY.

Meeting February 8, 1905.

EXOPHTHALMIC GOITRE.

Dr. H. Tuholske read a paper with the above title, for which see page 239.

DISCUSSION.

Dr. E. F. Tiedemann said our knowledge of Basedow's disease is very unsatisfactory. Very little was definitely known about the disease, and the essayist had mentioned in his paper about all that could be said on the subject. Not even the cause of the disease was known. Two theories had been advanced; one that it was a neurosis, and the other that it was primarily an affection of the thyroid gland, but what caused the affection in the gland was not known. It was only an assumption that it was a disease of the gland. Histological specimens did not show that there was an excessive secretion; they usually show a hyperplasia. In all cases of Basedow's disease and Graves' disease there was an enlargement of the thymus which had not been satisfactorily explained.

Dr. Lutz asked what was the condition of the vascular system.

Dr. Tiedemann said there was a hypertrophy of the muscular wall caused by the increased amount of work, a secondary condition to the hyperemia.

Dr. Lutz: What relationship does that bear to the well recognized disturbance of the vaso-dilators?

Dr. Tiedemann: The dilatation produces a hyperemia, and that causes a hypertrophy of the vessels.

Dr. Glasgow asked if the increase in the thymus gland had not been supposed to have something to do with the symptoms.

Dr. Tiedeman said this condition had never been explained, but it is always present.

Dr. Robert Luedeking said that Kocher, in his latest publication in "Die Grenzgebiete der Medicin und der Chirurgie," cited fifty-nine operations for Graves' disease, with forty-five recoveries and four deaths, the recoveries extending to the tachycardia, the tremor and gastro-intestinal disturbances. In some of the cases Kocher simply tied off the vessels, in others he resected both lobes in part, and in others but one lobe, seeming to have arrived at about the same favorable results in all of the forty-five cases. His aim was to eliminate the thyroid gland from the circulation as far as possible..

Referring to the medicinal treatment of Basedow's disease, the speaker said the drug treatment had about gone into bankruptcy. About the only means that could be employed were enforced rest, the application of cold to the heart and front of neck and galvanism; cardiac sedatives had been of no avail. It is a fact, however, that some cases get well without extraneous assistance. At the present time it was pretty well established that ex-ophthalmic goitre must be considered an intoxication; most forms of Graves' disease are due to a progressive growth and development of the thyroid gland. Cases of a neurotic character purely, get well of themselves or under the application of cold and galvanism; not so those due to true hyperplasia of the gland. The strong contrast between the condition of the gland in cases of myxedema and cretinism and in ex-ophthalmic goitre first suggested the idea that an over-activity of the gland was the cause, and suggested that extirpation of the gland could bring about relief. And it was experimentally shown that the ingestion of large amounts of the extract of the gland will produce symptoms identical with those of Graves' disease. Thyroid extract given

to a nursing mother has produced the phenomena of ex-ophthalmic goitre in the suckling infant.

Moebius first enunciated the theory of thyroid intoxication in these cases, and fell upon the idea of administering the serum of thyroidectomized dogs to such patients. He had a number of very successful results. In the same manner the blood serum of human beings afflicted with myxedema and cretinism was successfully employed. It was only a step to administer the milk of thyroidectomized animals to persons suffering with Graves' disease, and Lanz reported a series of successes. Quite recently Dr. Lademann reported a case of Graves' disease in a woman, in whom all the usual treatments had been tried, and a fatal issue seemed imminent. Milk from thyroidectomized goats was employed, and a favorable outcome resulted. The speaker believed we should pin our faith at the present day to the use of the serum of thyroidectomized animals or the milk of thyroidectomized goats, the latter method, perhaps, being more favorable. He mentioned a case which came under his observation and went to operation at his suggestion. The patient was a lady of sixty years, who had a large thyroid for thirty-five years and had raised a large family. She began to be troubled with circulatory disturbances, although the gland did not show any particular increase. Attacks of rapid heart action came on with dyspnœa, and the skin assumed a pigmentation much darker than before. She developed a paralysis of the left vocal chord. His judgment of the case was that the symptoms were due not so much to the toxic influence of the gland as to its mechanical influence from pressure on the pneumogastric and recurrent laryngeal nerve through tension in the gland. The gland was removed almost in its entirety, and the symptoms after removal were similar to those mentioned by the essayist, but on the fourth day after operation affairs began to right themselves, and today there is a normal state.

The milk treatment ought to be adopted in anticipation of a surgical intervention, and thus better surgical results assured.

Dr. Lutz asked why the speaker did not lay some stress upon resection of the sympathetic.

Dr. Luedeking said resection and section of the sympathetic had been departed from because no anatomical changes were found there and because results following this procedure had been extremely poor.

Dr. Tupper mentioned an article written by Sanderson in which that authority spoke of some interesting points in the therapeutics and also the probable exciting cause of the development of some of the symptoms in this disease. Sanderson had operated on a belly case, and at the time noticed no special evidences of ex-ophthalmic trouble. Soon after the operation the patient developed a marked tachycardia, the pulse running over two hundred per minute; coincident with this there were evidences of enlarged thyroid. It had never occurred to the speaker that this disease existed in a latent state requiring only some exciting cause to develop it, but Sanderson stated that it did so exist, and needed only some such operative procedure as mentioned to make it manifest. Sanderson attached a good deal of importance to therapeutic measures, and especially, in tachycardia, to a drug which the speaker had often used with good effect in other cardiac conditions, and that was cactus grandiflora. He had noticed a marked diminution in the heart beat after using this drug, when other preparations had failed to give results. Referring to excision of the ganglia, he mentioned a case of glaucoma in which he resected the superior cervical ganglia, but without any marked impression on the glaucoma, though there was some diminution in the tension of the eyeball and in the tachycardia that existed.

Dr. Glasgow called attention to the fact that almost all these cases of exophthalmic goitre are in women, and thought this was a matter of importance to consider. In women the vascular system is subject to perturbations not seen in men, and all cases of exophthalmic goitre increase in size during the menstrual period. There was a vascular plethora at that time. He had noticed this following the artificial menopause, and it was his custom to relieve this condition by bleeding. This condition seemed to prove

that there was some relation between the vascular system and the increase in the size of the thyroid. He would not be astonished to hear that this condition of plethora had something to do with the increase in the size of the thyroid, and possibly the secretion and the nervous symptoms following. He referred also to the old method of destroying the thyroid by the actual cautery and the galvanic current, and asked if this method was followed by good results. He had found that the administration of thyroid extract seemed to make them worse. The very fact that cases get well without the removal of the gland seemed to show that the trouble was not in the gland itself, and the cause must be outside of it, in the general system.

Dr. Dorsett mentioned the case of a girl about fifteen years of age who got well without operative interference. She was a nervous child, suffering a good deal with dysmenorrhea and developed exophthalmic goitre. Financial reverses forced her to seek employment and she took a position where she was compelled to be on her feet and she developed menorrhagia. He treated her with arsenic and strophanthus for over two years and she got well of the goitre.

Dr. Carson said his study of the literature in regard to excision of the sympathetic ganglion had impressed him with the idea that the operation had been devoid of results. He mentioned a case treated by Dr. Bliss in which all the symptoms were exaggerated. As the patient was in no condition to place in the hands of the surgeon Dr. Bliss tried therapeutic measures. He commenced with twelve drops of suprarenal extract several times a day and the symptoms steadily improved and today she was able to do housework. The exophthalmus had diminished steadily, the goitre also had diminished in size and she did not require any surgical interference.

Dr. Carson asked if any of the members had observed any relation between the mammary gland and enlarged goitre. He mentioned the case of a lady who consulted him and who had very prominent eyes, rapid pulse and quite a large goitre. Several months previously, while riding in a street car, a man dug his elbow into her breast, he being thrown against her by a lunge of the car. Following this a tumor developed and with it the appearance of a goitre and while the eyes had been prominent, this condition became increased. He found a tumor, apparently solid, about the size of a hen's egg and advised operation. At the operation tumor was found which proved to be a cyst filled with a dark fluid. After the operation the goitre diminished very decidedly and the exophthalmus disappeared. Another case was that of a man about thirty years of age, with a large tumor on the left side of the neck and symptoms of dyspnea; he took it to be an enlargement of the left lobe of the thyroid pressing upon the trachea, thus interfering with respiration. There was no exophthalmus, but the interesting point was that he found the breasts enlarged and somewhat indurated.

Dr. Tuholske said in closing that one of the objects of his paper, to get up a discussion on this important subject, had been accomplished, but the discussion had taken an unusually wide range, with the development of so many divergent views that the confusion which surrounded some parts of the subject had not been cleared up; on the contrary left confusion worse confounded. To somewhat clear up the matter, he desired again to emphasize the fact that exophthalmic goitre, the vascular goitre, was the subject of his remarks, and not a goitre grafted upon an otherwise diseased goitre, or the goitre of the endemic surroundings, but of the vascular goitre, the pathological anatomy of which he gave in the beginning of his paper, and of which the increased vascularity, due to the enlargement of the normally existing vessels and to vessels of new formation, was an important feature; the vascular form, of which Lushka says that the amount of blood carried through vascular goitre was equal to the amount of blood carried by the internal carotids. The results in the cases of vascular goitre quoted by Dr. Luedeking from Kocher's valuable and extensive paper in the *Grenzgebiete*, are gratifying and prove that the removal of half the gland, or half of the gland and the isthmus and ligation of the arteries, was the most logical procedure and this seemed to prove the position now generally taken that in exophthalmic goitre we are dealing with an over-activity of

thyroid glandular action and a hyper-secretion and its rapid delivery into the circulation. Many recent researches place the thyroid in intimate functional connection with the pituitary body and the suprarenal glands and that the medium of that connection is the sympathetic nerve. It seemed to be clear that over-secretion of the thyroid produced adrenal hyperactivity. At any rate adrenalin injected into the circulation produced vascular tension such as is the peculiarity of exophthalmic goitre. Furthermore, thyroid extract administered in exophthalmic goitre increased all of its symptoms just as does adrenalin injected in the same condition. In Dr. Carson's case in which the patient improved under the administration of adrenalin, we are forced to believe that from over-stimulation of the suprarenal glands by thyroid secretion, the period of exhaustion of suprarenal activity had arrived, as evidenced by every symptom of reduced blood pressure. At that stage, the adrenalin introduced would substitute suprarenal activity and act favorably until the suprarenal glands again began to functionate. In the case of Sanderson's in a valuable recent article the relationship of suprarenal insufficiency with thyroid over-activity was evidenced by the bronzed condition of the skin. This clearly points to suprarenal and not thyroid disease alone. If modern research be correct, the removal of both cervical sympathetics, their ganglia and connecting nerves, should produce a general decline of the patient. Jonnesco operated on the sympathetic for goitre, glaucoma and epilepsy. The removal of the superior ganglia alone, seemed to reduce the ocular tension in glaucoma, and the protuding eye in exophthalmic goitre. The other symptoms of exophthalmic goitre were not favorably influenced by that procedure. His statistics on his epileptic work, with that of goitre and glaucoma, showed that the operations were without mortality, but six of his epileptics died some little time later, a mortality infinitely greater than in epileptics not treated to bilateral removal of the cervical sympathetic. To Dr. Glasgow's question as to why destruction of the gland by cauterization as formerly practiced, was not a good procedure, Dr. Tuholske said he could not answer that question ex-cathedra, but from a priori reasoning, he would think that if removal of the thyroid was desirable, the knife would be infinitely more definite, cleaner and the extent of removal much more under control. Should the cautery affect more of the gland than designed, enough of the gland might be destroyed to produce the usual signs of thyroid inefficiency or absence, as myxodema, etc.

ST. LOUIS SURGICAL CLUB.

Meeting February 8, 1905.

THE TREATMENT OF APPENDICITIS.

Dr. Grant read a paper on this subject, for which see page 263.

Discussion.

Dr. Jonas said that cases of appendicitis ordinarily are easily diagnosed, but at times cases are met with in which the diagnosis is rather difficult. He mentioned a case of Dr. Robertson's, who suspected that the patient had appendicitis, and when Dr. Jonas examined the case, he found a large infiltration on the left side, and a slight infiltration on the right side of the abdomen showed there had been trouble there before. He had seen many cases in women, where he was not quite clear as to whether the picture at the time of the examination was produced by appendicitis or by some acute ovarian trouble. The tissue around the ovary, and the tissue around the appendix are adjoining, and after an abscess has developed, it was, in his opinion impossible to say from which source the abscess comes. Gradually the pus flows down into the pelvis, and if

it then progresses from the right side to the other side of the pelvis, we have to deal with the same condition as in pronounced pelvic abscess. In regard to the last remarks of Dr. Grant, the speaker believed that, when called to see a case of acute appendicitis soon after the attack, an immediate operation is advisable, as since we may rightly hope in such a case, that we are in time to prevent peritonitis. If the patient has been troubled with appendicitis for sometime, and is growing worse, then an operation is indicated, but if the patient has started to improve, then operation should be deferred until we see whether the patient will not get over the attack without interfering, giving opportunity for operation in the interval. If there is a pronounced abscess in the region of the appendix, there is no doubt that the pus should be evacuated. But how shall we treat the appendix in such a case? If it comes right into view, it should be cut out, but long hunting for the appendix is not advisable, as in so doing, the operator might break through some of the thin adhesions and endanger the life of the patient by producing peritonitis. Therefore if the appendix is not found easily, it would be advisable only to empty the abscess, and then after a few days to make a new incision, just as though the first incision had never been made, and remove the appendix. The speaker considered these operations for removing the appendix as being almost without danger.

Dr. Dixon was sorry the essayist had left out all reference to blood examination, as he hoped the question of leucocyte count would be taken up.

Cabot holds that the leucocyte count goes for very little, as, if the leucocytosis is high, we cannot say that it is a severe case of appendicitis because of that fact alone, nor if the leucocytes are almost normal can we say that it is a severe case of appendicitis, or that it is a light attack. Neither was there anything said as to the condition of the skin in the location of the appendix, or in the abdominal region, either anterior or posterior. Sheren, in his report of cases, gives a number in which there is an anesthetic condition of the skin, and as that obtains, it points to a severity of the case, either to a gangrene or to a rupture of the appendix.

In regard to saying whether it was the first attack, or second or third attack, the doctor thought this a very difficult thing to do. To say to a person when seen, that it is the first attack he has ever had, would be precluding all slight attacks. It is well known that infants, up to six months have been operated upon for appendicitis. It is now claimed by some that the different attacks of colic (indigestion so-called) are nothing more than slight attacks of appendicitis.

The location of pain was not always in the region of McBurney's point or in the right iliac-fossa. In regard to the question of when to operate, it was his belief that so soon as the diagnosis of appendicitis had been made, an operation should be insisted upon. We cannot tell when it is going to cause a perforation or when general peritonitis will follow, and the life of the patient be very much endangered. We cannot tell by the blood count that it is severe or that it is not a severe case. As soon as the diagnosis of appendicitis is made, then, the sooner the operation is over, the sooner the patient is out of danger.

Dr. Clopton, referring to ulceration of the mucosa of the appendix, healing and eventually obliterating the lumen, finally curing the disease, might be true, so far as infectious complications are concerned, but there was a distinct entity as annoying in itself as any acute attack, and that was obliterative appendicitis. The few cases of obliterative appendicitis that he had seen were as disturbing to the patient's general nutrition as any mild abdominal case could be.

Destruction of the mucous membrane had frequently been observed to the extent of two or three inches. He did not believe it was a cure when the mucous membrane was destroyed. He had seen cases where the symptoms were so very indefinite as to lead one to suspect the trouble to be in the kidney, gall bladder or appendix, but after the removal of the appendix, frequently the cases were entirely cured. The speaker did not think he had ever seen an appendix removed too soon, but if the appendicitis

had passed the acute stage, it would be better to wait for the interum to operate. In his more recent observations Murphy, of Chicago, claimed to have saved twenty out of twenty-one cases of general peritonitis, by simply going into the pelvis and draining. This would indicate that a large number of peritonitis cases can be saved by this simple treatment.

Dr. Deutsch said that one point to be considered especially was that these cases were all from private practice, in distinction from cases which come from the charity hospitals, clinics, etc., who will stand more than patients in the higher walks of life and therefore gave a better clue as to how to handle cases in private practice. If we go by what the doctor had said we do not know much more than we did before as to the exact plan to adopt. We do not get at the bottom of the subject by studying stated cases, which individually decide nothing. They should be classified to show such cases where the patient was opposed to operation. By doing this it would be possible to gather statistics showing what the operation does for this class of cases. He recalled that one doctor made it a rule not to interfere until absolutely necessary, but had some bad results and then began treating on the theory that operation should be performed at once. His conclusions were based largely on studies of reports, and while he was quite successful the speaker did not think this a correct basis. The right way was to get men in private practice to give the results of their experience in the treatment of one hundred cases or more.

Dr. Robertson believed in the conservative treatment, and did not believe in operating upon all cases. Appendicitis cannot always be positively diagnosed when first seen, and if we go on the theory that we must operate upon all cases, we would operate on a lot of stomach-aches!

Dr. Kirchner considered it was best to operate at once; but if seen after twenty-four hours, and still acute, it was better to wait, put the patient on starvation diet, and not give purgatives unless specially indicated. There is also some danger, he believed, in giving enemas that are too large; they should be small, because there is then less danger of starting trouble if there is an abscess or if the attack is acute. Certain reports that the doctor had seen stated, that the best results were those where the operation was in the interum, and the next best results were those in which the operation was during the first period, and the worst results were those made after forty-eight hours, if the symptoms of the attack be still acute. From statistics he believed that if the cases were not seen during the first period, it would be better to put them on starvation treatment and watch, and if they continued to get worse, operate at once.

When cases are opened it may be advisable to do some exploring, for pus has a tendency to gravitate into the pelvic cavity, and the appendix, if accessible, removed; but it was dangerous to search long for it.

The speaker did not agree that there was always sensitiveness at McBurney's point. If the appendix becomes gangrenous there will be little pain. But pain may also be referred. For instance, if the pus is spreading in the pelvic cavity, then pain will sometimes occur more distinctly on the left side than on the right. This also may be true of certain cases where there is tubal trouble connected with the appendix.

Dr. Dixon said that if we could tell for a certainty the case is doing well on the second, third or fourth day, and could positively say that it would continue to do well, the surgeon would be safe in deferring the operation. Provided the patient was so situated, we could operate at a moment's warning. In an attack where the case is progressing well and the condition is satisfactory, we cannot say that it is not going to change in six or twelve hours, or even sooner.

In closing the discussion, Dr. Grant stated that Dr. Deutch had given the reasons for writing the paper. He wanted to report his private cases only. These were cases that he had seen from the beginning to the termination of the disease, and would show the results of the conservative treatment. In 1900 the conservative treatment gave him

three deaths consecutively. The conservative treatment was modified, so far as he was concerned. In private practice he found this trouble: that when a diagnosis of appendicitis is made and an operation is suggested, many patients will not hear of it. In the paper five deaths were reported, and in three of these cases he had advised operation.

Dr. Jonas believed that the difference between the frequency with which this disease occurs in the male and in the female is to be accounted for by the greater blood supply to the appendix in the female subject. With reference to the suggestion that appendicitis was not dangerous, the speaker quoted the words of a noted Berlin surgeon who, when the statement that people never died of appendicitis was made, retorted that they never die of appendicitis if we do not count along the consequences: peritonitis and all metastatic troubles.

Presentation of Specimens.

Dr. Jonas presented a specimen of Typical Fibroma of the Mammary, and a specimen of Multiple Sarcoma.

BOOK REVIEWS.

LEITFADEN FUER MEDICINISCH-CHEMISCHE KURSE. Von DR. A. KOSSEL. Heidelberg. Fifth revised edition. 1904. G. E. Stechert, New York.

This little brochure of seventy pages is recognized in Germany as one of the best guides for the beginner in inorganic and organic chemistry. It is specially designed for the student of medicine, and contains the information necessary for a "working knowledge" of physiological chemistry.

HYPERÆMIE ALS HEILMITTEL. Von PROFESSOR DR. AUGUST BIER. in Greifswald. Mit 10 Abbildungen. Leipzig, Verlag von F. C. W. Vogel. 1903.

This very neat volume of 220 pages, 8 mo., is devoted to a subject which this author, more than any other man, has the honor of having introduced into surgery. The principle of treating joint and other inflammatory affections by hyperæmia is, now that Bier's successes are well known, an established procedure. After the introduction, the opening division of the book deals with the different forms of hyperæmia, and with the various means of producing it. The next division treats of the various ways in which hyperæmia is beneficial. The third division informs us how to treat with hyperæmia the different parts of the body as well as how to treat many pathological processes with the same. This volume deserves special consideration as being the standard treatise on this subject.

INTERNATIONAL CLINICS—A QUARTERLY OF ILLUSTRATED CLINICAL LECTURES ON ESPECIALLY PREPARED ORIGINAL ARTICLES. Edited by A. O. J. KELLY. Volume IV. Thirteenth series. 1904. J. B. Lippincott Company, Philadelphia.

This volume is devoted to a series of papers by well known authors on treatment, medicine, surgery, gynecology and obstetrics, neurology, orthopedics, ophthalmology, pathology. Among the contributors on their respective branches are Tyson, Musser, Keen, Senn, Dugan and others of equal renown. The papers contain in a condensed form the essential points on the subjects in hand, gleaned by the authors from the literature and their own observations.

MANUAL OF CLINICAL MICROSCOPY AND CHEMISTRY. By DR. HERMANN LEHNHARTZ. Authorized translation from the fourth and last German edition, with notes and additions by Henry T. Brooks, M. D., with 148 illustrations in the text and nine colored plates. F. A. Davis Company, Philadelphia. 1904.

We now have many excellent works upon clinical chemistry and microscopy. The subject matter of all is very similar, so that the chief point of difference is in the classification and arrangement thereof. The chief value of this little work of four hundred pages lies in its excellent arrangement, its splendid cuts, its conciseness and its general simplicity. It is needless to add that the subject matter is in every sense reliable and up to date. Lehnhartz's connection with the Leipzig clinic since 1879, and his close application to laboratory methods, has made him an absolute authority on the subject. The translator has made many valuable additions to the work where he has deemed them necessary. These additions have been intended chiefly to emphasize "points in examinations which might at first glance seem self-evident." The most important additions to this volume by the author have been the sections on the molecular concentration of the blood and urine (cryoscopy), the bacillus dysenteriæ (Shiga), the paratyphoid bacillus, a new method for staining the blood, and addenda to the section on the Widal reaction.

A Text-Book of Physiology. By Isaac Ott, A. M., M. D., Professor of Physiology in the Medico-Chirurgical College of Philadelphia. With 137 illustrations. Royal octavo, 563 pages. Bound in extra cloth. Price, $3.00 net. F. A. Davis Company, publishers. 1914-16 Cherry street, Philadelphia, Pennsylvania.

It was the author's aim to embody in this work those chief facts of physiology, a knowledge of which is indispensable in the study of pathology and medicine in general. The author has well succeeded, and presents a book which seems exceptionally adapted to the needs of the student.

Hand-Book of the Anatomy and Diseases of the Eye and Ear. For Students and Practitioners. By D. B. St. John Roosa, M. D., LL.D., Professor of Diseases of the Eye and Ear in the New York Post-graduate Medical School, and A. Edward Davis, A. M., M. D., Professor of Diseases of the Eye in the New York Post-graduate Medical School. Price, extra cloth, $1.00, net. F. A. Davis Company, publishers. Philadelphia.

Within the compass of this little manual there is contained a really remarkable amount of authoritative information on the principles of treatment and anatomy of the eye and ear. It was designed by the authors to furnish a ready means of corroborating and amplifying what is seen by the student in his daily clinical work.

The information supplied is, generally speaking, up to date and in accord with the present status of ophthalmic and aural opinion. We must take issue, however, with the teaching that a cycloplegic is unnecessary in the majority of cases of refraction. It may often be necessary to modify the refractive findings with the accommodation paralyzed, but as the starting point for such modification we should accept the static refraction.

The Eye: Its Refraction and Diseases. By Edward E. Gibbons, M. D., Assistant Surgeon of the Presbyterian Eye, Ear and Throat Hospital; Demonstrator and Chief of Clinic of the Eye and Ear Diseases in the University of Maryland, Baltimore. 472 pages, small quarto. Cloth, $5.00; half morocco, $6.50, net. The McMillan Co., New York.

In its completed form this work will consist of two volumes, of which the first, dealing with refraction, is the subject of the present review. By a curious oversight the fact that the work will be in two volumes is not mentioned, either on the title page or elsewhere, and the casual reader will wonder why "Diseases" are mentioned at all. The present volume consists of twenty-eight chapters, beginning with a consideration of "Light, Its Propagation and Refraction," and ending with "Spectacles and Nose-Glass Fitting and the Neutralization of Lenses." So much of physics involved as is required for a proper understanding of optics is included. The author has been at pains to clarify the subject for the benefit of the reader whose knowledge of mathematics is limited, and in pursuance of this object has greatly simplified the deductions of the various formulæ. The diagrams are well drawn and very materially aid in elucidating the text. For a work published so recently, it is rather curious that no mention is made of the electric ophthalmoscope and retinoscope. In the chapter on "Visual Acuity and Accommodation" we are told that "the picture cards intended for children too young to read are not reliable, as it is almost impossible to make the pictures conform with the usual standard of acute vision." The author shows his unfamiliarity with the beautiful Universal Test Characters of Ewing, which (with insignificant variations) are drawn exactly to the Snellen scale. In a book containing so many mathematical formulæ it is surprising to find so few typographical errors. The index is well arranged and complete.

Description of the Plate.

The plate is a tri-color reproduction of a water-color composite picture of the blood of a patient suffering from double tertian malaria, with the addition of a crescent from a case of double tertian with associated æstivo-autumnal malaria.

The blood was taken during a paroxysm, and all the figures, except o, p, r, x, y, z and bb, represent a few of the characteristic organisms and cells found under a three-quarter inch circle cover glass; the others, except bb, were from films taken from the same patient at the same time, the organisms being abundant in various stages of development. The blood was stained with the titrated eosin methylene blue stain described, and the figures were outlined with a camera lucida, Reichert microscope. They represent a magnification of about 1400x.

a. Young organisms free in the blood, the cytoplasm blue, the chromatin or nucleus red.

b, c, d and e. Early stages of development in the red blood cells, so-called ring forms.

f, g, h and i. Later stages of development, distinct enlargement of the invaded cells, which stain less intensely, beginning of granular degeneration of the red cells, also appearance of the pigment of the organisms.

j. Adult organism, pigment abundant and scattered, nucleus beginning to divide.

k. Adult organism, pigment scattered, nucleus divided and distributed through the organism.

l. Organism undergoing segmentation, nuclei in the segments, pigment collected in the lower part of the organism.

m. Rosette appearance of the segmenting organism, pigment collected in the center.

n. Organism showing segmentation complete, young organisms and pigment being liberated from the ruptured red cell.

o. Crushed red cell containing an organism, the granules of the degenerating red cell scattered.

p. Adult organism free in the blood.

y. Intracellular flagellum.

z. Extracellular flagellum.

d. Young organism with two nuclei.

f. Red cells invaded by two organisms each.

q. Neutrophilic leucocyte, intensely stained nuclei, neutrophilic granulation of cytoplasm, granules small and irregular, a mass of malarial pigment in the cell to the left of the nucleus.

r. Mast cell, feebly stained nucleus, basophilic granulation of cytoplasm, granules large and deeply stained.

s. Eosinophile, intensely stained nuclei, eosinophilic granulation of cytoplasm, granules spherical.

t. Crushed neutrophilic leucocyte, scattered chromatin and granules.

u. Lymphocyte, intensely stained nucleus, light blue nongranular cytoplasm.

v. Large mononuclear cell, moderately stained nucleus, neutral, somewhat granular appearance of cytoplasm.

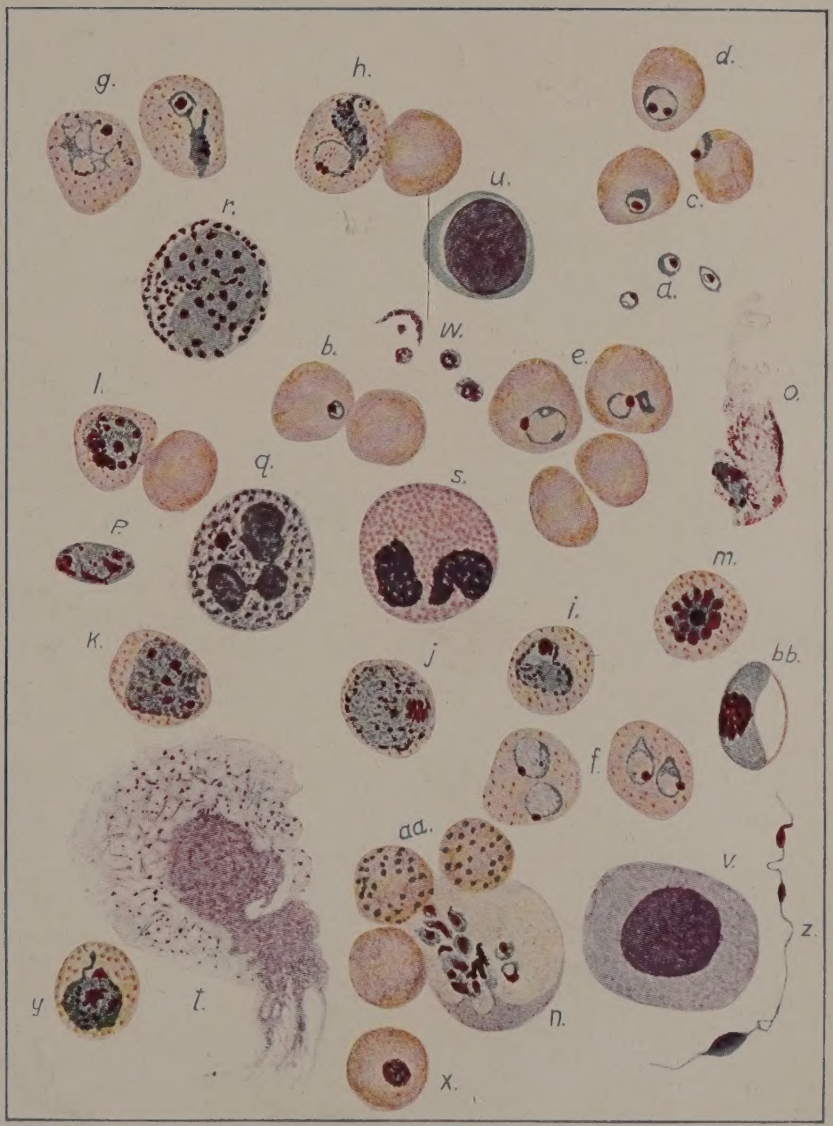
w. Blood plates, indefinite trabecular structure, various sizes and shapes.

x. Blood plate lying upon a red cell.

aa. Red cells showing blue granulation incident to anemia.

bb. Red cell containing a crescent, only a trace of the red cell remaining, the reddish nucleus of the crescent showing through the scattered pigment in the center of the blue organism.

Several normal red cells are shown unlettered.



A.B. Streedain del.

MALARIA BLOOD